

# Threatened Freshwater Species Mapping Technical Guide for the Wellington Region

P. Crisp  
Environmental Science Department

**For more information, contact the Greater Wellington Regional Council:**

Wellington  
PO Box 11646



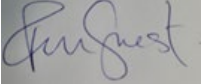
T 04 384 5708  
F 04 385 6960  
[www.gw.govt.nz](http://www.gw.govt.nz)

Masterton  
PO Box 41

T 06 378 2484  
F 06 378 2146  
[www.gw.govt.nz](http://www.gw.govt.nz)

GW/ESCI-T-23/9

[www.gw.govt.nz](http://www.gw.govt.nz)  
[info@gw.govt.nz](mailto:info@gw.govt.nz)

<b>Report prepared by:</b>	P Crisp	Environmental Science Contractor	
<b>Report reviewed by:</b>	R Uys	Senior Environmental Scientist	
<b>Report approved for release by:</b>	P. Guest	Senior Policy Advisor	 <b>Date:</b> 28 September 2023

**DISCLAIMER**

This report has been prepared by Environmental Science staff of Greater Wellington Regional Council (GWRC) and as such does not constitute Council policy.

In preparing this report, the authors have used the best currently available data and have exercised all reasonable skill and care in presenting and interpreting these data. Nevertheless, GWRC does not accept any liability, whether direct, indirect, or consequential, arising out of the provision of the data and associated information within this report. Furthermore, as GWRC endeavours to continuously improve data quality, amendments to data included in, or used in the preparation of, this report may occur without notice at any time.

GWRC requests that if excerpts or inferences are drawn from this report for further use, due care should be taken to ensure the appropriate context is preserved and is accurately reflected and referenced in subsequent written or verbal communications. Any use of the data and information enclosed in this report, for example, by inclusion in a subsequent report or media release, should be accompanied by an acknowledgement of the source.

The report may be cited as:

Crisp P. 2023. *Threatened freshwater species mapping technical guide for the Wellington region*. Greater Wellington Regional Council, Publication No. GW/ESCI-T-23/9, Wellington.

## **Executive summary**

The National Policy Statement for Freshwater Management 2020 (NPS-FM) requires regional councils to identify the critical habitats and conditions of nationally Threatened freshwater species and to set limits and targets for Threatened freshwater species in each Freshwater Management Unit. This report identifies the Threatened freshwater-dependent species and their critical habitats and conditions in the Wellington Region.

The list of Threatened freshwater species was based on the lists of nationally Threatened species that have been located in the Wellington Region. Freshwater-dependence was determined by considering the critical elements of the life-cycle and habitat-use of each species. The locations of Threatened species were determined from a wide variety of data sources. Each location was sense-checked from aerial imagery but field checks have not been made.

A total of 30 species were identified as meeting the criteria, including: eleven plant, nine invertebrate, seven bird, two fish and one bat species. There were 260 observations used to determine the location of these Threatened species. Some observations covered a number of sites (eg, bittern habitat includes wetlands and streams within 15km of a breeding site). It is noted that there are data limitations because of the lack of search effort for some species across the region.

Recommendations for next steps include mapping and workshopping the development of limits and targets with other regional councils.



# Contents

<b>Executive summary</b>	<b>i</b>
<b>1. Introduction</b>	<b>1</b>
<b>2. Objectives</b>	<b>2</b>
<b>3. Methodology</b>	<b>3</b>
3.1 Species Identification	3
3.2 Identification of 'freshwater-dependent' species	4
3.3 Determination of the locations of species in the Wellington Region	4
3.4 Habitat use	6
<b>4. Results</b>	<b>7</b>
4.1 Threatened freshwater-dependent species recorded within the Wellington Region	7
4.2 Locations and critical habitat requirements of freshwater-dependent species in the Wellington Region	8
<b>5. Discussion</b>	<b>9</b>
<b>6. Recommendations and next steps</b>	<b>10</b>
<b>Acknowledgements</b>	<b>11</b>
<b>References</b>	<b>12</b>



## 1. Introduction

The National Policy Statement for Freshwater Management 2020 (NPS-FM) provides local government authorities with direction on how they should manage freshwater under the Resource Management Act 1991. One of the requirements of the NPS-FM is that each regional council is to identify within each Freshwater Management Unit (FMU):

- the location of habitats of Threatened species, and to
- set an environmental outcome for Threatened species in each FMU.

Threatened species have been defined in the NPS-FM as any indigenous species of flora or fauna that:

- relies on fresh water bodies for at least part of its life-cycle, and
- meets the criteria for Nationally Critical, Nationally Endangered or Nationally Vulnerable species in the *New Zealand Threat Classification Manual* (Townsend et al. 2008).

The aim of the NPS-FM is to identify the extent to which an FMU or part of an FMU that supports a population of Threatened species has the critical habitats and conditions necessary to support the presence, abundance, survival and recovery of the Threatened species. All the components of ecosystem health must be managed, as well as (if appropriate) specialised habitat or conditions needed for only part of the life-cycle of the Threatened species. Habitat is defined in the NPS-FM as: the physical form, structure, and extent of the water body, its bed, banks and margins, its riparian vegetation and its connections to the floodplain and to groundwater.

## **2. Objectives**

The goal of this report is to identify which nationally Threatened species in the Wellington Region meet the criteria for inclusion as a 'freshwater-dependent' species, to identify where they are located and to provide information about the critical habitat and conditions required for the species to persist.



### 3. Methodology

#### 3.1 Species Identification

The Department of Conservation (DOC) publishes the New Zealand Threat Classification Series (NZTCS) lists on its website ([Department of Conservation 2022](#)). These lists for animal, plant, and fungal groups detail which species are nationally Threatened (Nationally Critical, Nationally Endangered or Nationally Vulnerable). The process for assessing species conservation status is detailed in the NZTCS manual 2008 (Townsend et al 2008), but some categories were revised in a 2021 amendment (Michel 2021). In the 2021 amendment, the nationally Threatened categories were expanded to include a 'Nationally Increasing' status. Species listed in this new Nationally Increasing status have been included in this analysis, as they meet the intention of the NPS-FM to protect nationally Threatened freshwater species.

The process used for identifying which species are relevant to the requirements of the NPS-FM was as follows:

1. All of the latest published national species conservation assessments were searched to extract the Nationally Critical, Nationally Endangered, Nationally Vulnerable or Nationally Increasing species.
2. Whether or not a species was present in the Wellington Region was determined by using the regional conservation assessments that have been undertaken for vascular plants (Crisp 2020a, based on de Lange et al 2013), birds (Crisp 2020b) and freshwater fish (Crisp et al. 2022, based on Dunn et al. 2017). Updated national conservation lists for bats and birds were used (O'Donnell et al. 2022; Robertson et al. 2021). For other species groups, such as freshwater invertebrates (Grainger et al. 2018), mosses (Rolfe et al. 2014) and marine invertebrates (Freeman et al. 2014), national experts (Brian Smith, Tom Drinan, Jessica Beever and Geoff Read *pers comm*) were contacted to find out which species were present in the region.
3. A decision was made as to whether or not the species fitted the criteria of being 'freshwater-dependent' as discussed in section 3.2 below.

The latest national conservation assessments for amphibians, bats, birds, butterflies and moths, earthworms, fleas, freshwater fish, freshwater invertebrates, frogs, fungi, hornworts and liverworts, Hymenoptera, lichens, macroalgae, marine invertebrates, marine mammals, mites and ticks, Orthoptera, reptiles, sharks and rays, slugs and snails, spiders, stick insects, vascular plants, and velvet worms were considered. Only Nationally Threatened species in the bat, bird, freshwater fish, freshwater invertebrate, marine invertebrate, hornworts and liverworts, and vascular plant lists were determined to fit the criteria of being 'freshwater-dependent' and were present in the Wellington Region.

### 3.2 Identification of ‘freshwater-dependent’ species

There was a need to identify whether or not a species met the criteria of being ‘freshwater-dependent’, as the NPS-FM defined a ‘freshwater-dependent’ Threatened species as being reliant on water bodies for at least part of its life-cycle. This raised two questions about (1) what is regarded as ‘freshwater’ and (2) how to determine which species are ‘dependent’ on freshwater.

The NPS-FM applies to all freshwater environments (including groundwater), and to receiving environments to the extent they are affected by freshwater (which may include estuaries and the wider coastal marine area). This meant that defining ‘freshwater’ species has challenges for some coastal bird species that mainly use the coast as habitat but also make use of freshwater habitats during their lifecycle (particularly estuaries). Taranui / Caspian tern is relevant to that determination. Similarly, the habitat of the large-egged polychaete (*Boccardiella magniovata*) is brackish but the species is present 0.5 km upstream in the Hutt River. Those species have been included in this report.

Identifying whether or not a species met the criteria of ‘relying on water bodies for at least part of its life-cycle’ was more challenging. Many species rely on water bodies for their life-cycles, as water is essential to life. However, for the purpose of this exercise, there was a need to identify which species were the most relevant to the intent of the NPS-FM. Guidance was taken from the approach applied to determining the extent of natural inland wetland vegetation where wetland species have been identified as Obligate (OBL - almost always require wet conditions for their habitat) or Facultative Wet (FACW - usually require wet conditions for their habitat). Species that can live in wet conditions but are also found in drier sites were excluded. Consideration was given to the inclusion of bat species that require food supplies from waterways for survival.

To make that determination, information was obtained from Clarkson et al. 2021 for wetland plant indicator status and from McArthur 2020 for freshwater biostatus of bird species in the Wellington Region, as well as bird species associated with freshwater environments listed in Storey et al. 2018. The Obligate status for fish, freshwater invertebrates and marine invertebrates was clear, while the status of the moss species had been detailed in Champion 2021. Long-tailed bats were considered to be freshwater-dependent, as they require freshwater invertebrates as a food source.

### 3.3 Determination of the locations of species in the Wellington Region

The NPS-FM requires the use of the best information available at the time and to use, if practicable, complete and scientifically robust data. Sources of information that provide the greatest level of certainty are preferred. It should be noted that species’ locations are not static and that this report provides information gathered up until the end of 2022.

Identifying the locations of Threatened species has been largely dependent on observers who are experts in their field. Location data was derived from the following sources:

- Birds – data collected by Greater Wellington Regional Council Te Pane Matua Taiao (GWRC) or Department of Conservation Te Papa Atawhai (DOC) (including: GWRC wetland bird survey data, GWRC/DOC Wairarapa Moana wetland bird monitoring, GWRC/DOC Lake Wairarapa lake-edge bird monitoring, GWRC coastal bird survey data, GWRC river bird survey data), Birds New Zealand Te Kāhui Mātai Manu o Aotearoa surveys, eBird (where the observer is a known expert).
- Plants – Paul Champion from the National Institute of Water and Atmospheric Research Taihoro Nukurangi (NIWA) (Champion 2021, uses data from Allan and Auckland Museum Herbaria, and verified iNaturalist records), GWRC data (Wellington regional threatened plant database), Museum of New Zealand Te Papa Tongarewa records.
- Freshwater invertebrates – data from DOC database, tadpole shrimp and kakahi information from GWRC records.
- Fish – data from New Zealand Freshwater Fish database (NIWA 2022), GWRC data, Wilderlab database (Wilderlab 2022).
- Moss – expert information – Jessica Beever *pers comm*, Perrie 2010, Museum of New Zealand Te Papa Tongarewa records
- Marine invertebrate – expert information – Geoff Read *pers comm*.
- Bats – DOC records and recent surveys completed by the Sustainable Wairarapa Bat Group (Carylon 2021, Ryan 2022).

Time scales were also considered, as old records may or may not be of current relevance. The point needs to be made however, that this exercise is about identifying the habitats of Threatened species and if those habitat conditions are still present, then the site remains of importance to the survival of a Threatened species. The approach taken here has been to include old observations but note as 'old', those observations made over 50 years ago.

All location data was checked for validity. For example, if a co-ordinate was at a point that was not within or close to a waterbody, then that record was excluded. Location data for a number of sites of some species did not fall in a 'natural' waterbody (eg, dabchick records from sewage treatment plants ponds or plant records that fell in dry paddocks). Those observations were excluded from the list of localities. Localities were included however in cases where wetland plants have been recorded but the wetland has not, as yet, been listed on the GWRC natural wetland database (GWRC Scientific Wetland database 2021). For many site locations, it is the entire waterbody that is of relevance, rather than the location of the observation. For example, lamprey spawn in the

headwaters of rivers, so the whole river is of relevance to the consideration of habitat as they are diadromous and need to be able to migrate to the sea to complete their life-cycle. Similarly with bird habitat, the whole of the waterbody is of importance.

### **3.4 Habitat use**

In general, the breeding habitat for a Threatened species was regarded as being of the greatest importance. However, in some cases, the use of habitat in the region for non-breeding purposes (eg, food collection, roosting or migration) has been considered a critical part of the life-cycle of the species. Kōtuku / white heron only breed at one site in the South Island but are a Migrant in the Wellington Region (i.e., less than 15 individuals are recorded in the region annually), being regularly recorded using habitat at Wairarapa Moana. Ngutu pare / wrybill meets the criteria of being a regional resident (i.e., more than 15 individuals have been recorded in the region annually, Townsend et al 2007). Ngutu pare breed on the South Island braided rivers but the entire population migrates north to winter in the North Island and individuals are regularly recorded at Lake Wairarapa.

Two bird species that were initially considered to have met the criteria for being nationally Threatened and being freshwater-dependent were tarapirohe / black-fronted tern and tuturiwhatu / northern New Zealand dotterel. Expert advice however was that both tarapirohe and tuturiwhatu are coastal species in the Wellington Region that primarily use marine habitat to feed. Consequently, these species have not been listed as freshwater-dependent. Significant coastal bird sites have been included however for species that do use freshwater habitat in the region as part of their life-cycle (eg, kōtuku / white heron, ngutu pare / wrybill and taranui / Caspian tern). The inclusion of pārerā / grey duck was questioned, as the driver of its threat status is hybridisation with exotic mallard ducks. As such, there were concerns as to whether an action plan could make an improvement in the status of the species if it could not prevent inbreeding in the wild. Bird experts have now identified that some pure-bred pārerā may be selectively choosing pure-bred partners and that it is considered worthwhile to protect the habitat of these pure-bred birds.

## 4. Results

### 4.1 Threatened freshwater-dependent species recorded within the Wellington Region

A total of 30 species were identified as meeting the criteria required by the NPS-FM, including: eleven plant, nine invertebrate, seven bird, two fish and one bat species (Table 5.1).

**Table 4.1: Nationally Threatened freshwater-dependent species in the Wellington Region**

Species type	Species name	Common name	National threat status
Birds	<i>Ardea alba modesta</i>	Kōtuku, white heron	Critical
	<i>Botaurus poiciloptilus</i>	Matuku-hurepo, Australasian bittern	Critical
	<i>Anas superciliosa</i>	Pāpera, grey duck	Vulnerable
	<i>Hydroprogne caspia</i>	Taranui, Caspian tern	Vulnerable
	<i>Anarhynchus frontalis</i>	Ngutu pare, wrybill	Increasing
	<i>Anas chlorotis</i>	Pāteke, brown teal	Increasing
	<i>Poliiocephalus rufopectus</i>	Weweia, New Zealand dabchick	Increasing
Fish	<i>Galaxias postvectis</i>	Kokopu, short-jaw kokopu	Vulnerable
	<i>Geotria australis</i>	Piharau, lamprey	Vulnerable
Plants	<i>Crassula peduncularis</i>	Purple stonecrop	Critical
	<i>Juncus holoschoenus</i> var. <i>holoschoenus</i>	Rush family	Critical
	<i>Carex cirrhosa</i>	Curly sedge	Endangered
	<i>Centipeda minima</i> subsp. <i>minima</i>	Sneezeweed	Endangered
	<i>Gratiola concinna</i>	Plantain family	Endangered
	<i>Mazus novaezeelandiae</i> subsp. <i>impolitus</i>	Mazaceae family	Endangered
	<i>Pterostylis micromega</i>	Swamp orchid	Endangered
	<i>Althenia bilocularis</i>	Aquatic herb	Vulnerable
	<i>Amphibromus fluitans</i>	Water brome	Vulnerable
	<i>Juncus pauciflorus</i>	Leafless rush	Vulnerable
Invertebrates	<i>Omanuperia hollowayae</i>	Stonefly	Critical
	<i>Potomopyrgus oppidanus</i>	Freshwater snail	Critical
	<i>Cryptobiosella spinosa</i>	Caddisfly	Endangered
	<i>Cryptobiosella furcata</i>	Caddisfly	Endangered
	<i>Hydrochema</i> sp. <i>W</i>	Caddisfly	Endangered
	<i>Lepidurus apus viridis</i>	Tadpole shrimp	Endangered
	<i>Echyridella aucklandica</i>	Kākahi, freshwater mussel	Vulnerable
	<i>Xenobiosella motueka</i>	Caddisfly	Vulnerable
	<i>Boccardiella magniovata</i>	Large-egged polychaete	Critical
Bat	<i>Chalinolobus tuberculatus</i>	Pekapeka, long-tailed bat	Critical

#### 4.2 Locations and critical habitat requirements of freshwater-dependent species in the Wellington Region

A total of 260 observations were detailed for the Threatened species identified (Table 5.2). Some observations cover a number of sites (eg, bittern habitat includes wetlands and streams within 15km of a breeding site).

**Table 4.2: Number of observations per Threatened species type**

Species type	Number of observations
Birds	61
Fish	115
Plants	50
Invertebrates	30
Bats	4

Details of the location/observation data and habitat requirements for each species are listed in Appendix A, Table A1. Species and observations that were not selected for inclusion are listed in Appendix B, Tables B1 and B2.

## 5. Discussion

The main limitation to this analysis was the lack of search effort for some species across the region. While, for example, there are a number of fishing records, there are multiple waterways and the observations have only been made at selected locations. The recent use of environmental DNA sampling is proving to be valuable, so it is likely that fish information will be improved in future. Locating Threatened plants relies on a small pool of specialists, as these species usually require good botanical knowledge to establish their presence. Expertise is also required for determining invertebrate and moss species. While kākahi may be easier to identify than a small caddisfly, determining a particular kākahi species still provides challenges (the shell looks slightly different between species). For birds, GWRC has accumulated data through regional monitoring programmes in the last ten years that is more up-to-date than that found in older databases and eBird is providing a useful resource. Given these limitations, the information provided in this report should be viewed as a point-in-time of current knowledge and more localities of some of the Threatened species listed will be found as the search effort improves.

There are decisions that need to be made about how the relevant waterbody for each species is mapped. As noted by Whatley 2020, effective management of Threatened species habitat requires an integrated approach, rather than considering waterbodies in isolation. For fish in particular, the finding of a species in the headwaters in one part of the catchment indicates that that whole river system is of relevance. It has been suggested that a single record could be scaled to a catchment so that everything downstream is included. There is also the question however as to whether or not the whole catchment of the waterbody should be included. If a species has been recorded in one arm of a river's headwaters, then it could be expected to be able to reach the other arms (unless there are physical barriers). For freshwater invertebrates, the riparian zone around the waterway is important to the survival of the species.

Defining critical habitat requirements is challenging for many species. For example, birds need a food supply which, in turn, is affected by water levels and quality. Detailing the impact each of these factors on the viability of a population is however far from an exact science. Sometimes there is insufficient information to enable the identification of important habitat characteristics. An approach that has been taken by Thorsen 2021a, 2021b is to identify the main factors known to threaten the persistence of species at the sites in broad categories (eg, water quantity or habitat structure). Champion 2021 has identified a number of factors in a similar way for the plants. A similar approach is taken in this report.

## 6. Recommendations and next steps

The next step in identifying the locations of the habitats of threatened species is to map the geographical co-ordinates provided in the spreadsheet detailed in Appendix A, Table A1. Some wetlands that are not currently listed in the GWRC Scientific Wetland GIS layer need to be delineated. This can be completed in the office using GIS, though ideally a site visit would provide more accuracy. Some of the wetlands are very small, but the NPS-FM does not have a size requirement for wetlands that contain Threatened species.

As series of five workshops were held with other regional councils to assist in obtaining a consistent approach to determining which species are relevant to the requirement of the NPS-FM. Decisions about how to map the habitat of freshwater fish and about data cut-out points (eg, age of the observation) were discussed. There was some divergence about the mapping of fish habitat, but the approach taken by GWRC at this stage is to include the catchment of the waterways where Threatened fish observations have been made. In terms of data cut-off points, there was a general consensus that observations prior to 2000 should only be used where the site has not been revisited (eg, because access has been denied or searches for species are constrained by season or terrain).

Some of the NPS-FM Threatened species locations identified in this report are in sites that are already identified in the Greater Wellington Natural Resource Plan (NRP) schedules ([Home » Proposed Natural Resources Plan \(gw.govt.nz\)](http://www.gw.govt.nz)) (eg, significant bird sites). The scheduled waterbodies that contain nationally Threatened freshwater species are listed in Appendix C, Table C1. Other species locations are not in scheduled sites and are listed in Appendix C, Table C2. Field visits and/or consultation with landowners will be required for those sites.



## Acknowledgements

Special thanks are given to Pat Enright for his assistance with the locations of Threatened plants in the region and to Alton Perrie for his assistance with fish, freshwater invertebrates and *Fissidens berteroi*. Tom Drinan (DOC), Jessica Beever (Landcare Research), Geoff Read (NIWA), Bridget Hatton (Te Papa), Cindy Baker (NIWA), Roger Uys (GWRC), Brian Smith (NIWA), Tony Silbery (ex-DOC), Owen Spearpoint (GWRC), Beverley Clarkson (Landcare Research) and Evan Harrison (GWRC) all provided valuable input to this report.

## References

Allibone RA and Gray D. 2018. *Critical habitat for Canterbury freshwater fish, koura/kekewai and kakahi*. Report prepared for Canterbury Regional Council.

Birds Online: [Home page | New Zealand Birds Online \(nzbirdsonline.org.nz\)](http://nzbirdsonline.org.nz)

Carlyon E. 2021. *Sustainable Wairarapa Incorporated (SWI) Bat Group long-tail bat monitoring*. Unpublished report written on behalf of Sustainable Wairarapa Inc. Bat Group.

Champion P, Elcock S and Moss M. 2021. *Stocktake of nationally threatened freshwater dependent plants*. Unpub. NIWA Report 2021186HN to Department of Conservation.

Clarkson BR, Fitzgerald NB, Champion PD, Forester L and Rance BD. 2021. *New Zealand wetland plant list 2021*. Manaaki Whenua – Landcare Research contract report LC3975 for Hawke’s Bay Regional Council.

Crisp P. 2020a. *Conservation status of indigenous vascular plant species in the Wellington region*. Greater Wellington Regional Council Publication No. GW/ESCI-G-20/20 Wellington.

Crisp P. 2020b. *Conservation status of native bird species in the Wellington region*. Greater Wellington Regional Council, Publication No. GW/ESCI-G-20/75, Wellington.

Crisp P, Perrie A, Morar A and Royal C. 2022. *Conservation status of indigenous freshwater fish in the Wellington region*. Greater Wellington Regional Council Publication No. GW/ESCI-T-22/02.

de Lange P, Rolfe J, Champion P, Courtney S, Heenan P, Barkla J, Cameron E, Norton D and Hitchmough R. 2013. Conservation status of New Zealand indigenous vascular plants 2012. *New Zealand Threat Classification Series 3*. 70 p.

Department of Conservation Threat Classification System website 2022:

<https://www.doc.govt.nz/about-us/science-publications/conservation-publications/nz-threat-classification-system>

Dekrout AS, Clarkson BD and Parsons S. 2014. Temporal and spatial distribution and habitat associations of an urban population of New Zealand long-tailed bats (*Chalinolobus tuberculatus*). *New Zealand Journal of Zoology* 41(4): 285-295.

Dunn NR, Allibone RM, Closs GP, Crow SK, David BO, Goodman JM, Griffiths M, Jack DC, Ling N, Waters JM and Rolfe JJ. 2017. Conservation status of New Zealand freshwater fishes. *New Zealand Threat Classification Series 24*. 11 p.

Freeman D, Schnabel K, Marshall B, Gordon D, Wing S, Tracey D and Hitchmough R. 2013. Conservation status of New Zealand marine invertebrates 2014. *New Zealand Threat Classification Series 9*. 20 p

Grainger N, Harding J, Drinan T, Collier K, Smith B, Death R, Makan T and Rolfe J. 2018. Conservation status of New Zealand freshwater invertebrates, 2018. *New Zealand Threat Classification Series 28*. 25 p

Goodman JM. 2002. *The ecology and conservation of shortjaw kokopu (Galaxias postvectis) in Nelson and Marlborough*. MSc Thesis, University of Canterbury, NZ.

Henderson IM. 1983. A contribution to the systematics of New Zealand Philopotamidae (Trichoptera). *New Zealand Journal of Zoology* 10:2, 163-176.

McArthur N. 2020. *A review of the freshwater biostatus of the birds of the Wellington region*. Client report prepared for Greater Wellington Regional Council, Wellington.

McGuinness CA. 2001 *The conservation requirements of New Zealand's nationally threatened invertebrates/ Carl A McGuinness*. Wellington, N.Z: Dept. of Conservation, Biodiversity Recovery Unit, 2001

McLellan, I. D. 1991. *Notonemouridae (Insecta: Plecoptera)*. Fauna of New Zealand / Ko te Aitanga Pepeke o Aotearoa [no.] 22.

Michel P. 2021. *Amendment to the New Zealand Threat Classification System manual 2008: revised categories 2021*. Department of Conservation, Wellington. 5 p.

National Policy Statement for Freshwater Management 2020, December 2022. <https://environment.govt.nz/assets/publications/National-Policy-Statement-for-Freshwater-Management-2020.pdf>

NIWA 2022. NIWA Freshwater Fish Database. Retrieved freshwater fish data from <https://niwa.co.nz/information-services/nz-freshwater-fish-database>

NIWA website. <https://niwa.co.nz/our-science/freshwater/tools/fishatlas/species/fish-species>

NZPCN website [New Zealand Plant Conservation Network \(nzpcn.org.nz\)](http://New Zealand Plant Conservation Network (nzpcn.org.nz))

Rockwell G, Littlemore J and Scimeour J. 2017. Habitat preferences of long-tailed bats (*Chalinolobus tuberculatus*) along forested riparian corridors in the Pikikariki Ecological Area, Pureora Forest Park. DOC Research and Development Series 349.

Ryan J. 2022. *Sustainable Wairarapa Inc. (SWI) Bat/ Pekapeka survey report 2021-2022*. Unpublished report to funders.

Perrie AC. 2010. The aquatic moss *Fissidens berteroi*: Observations of habitat characteristics from populations in the Wellington region. *Wellington Botanical Society Bulletin* 52, April 2010.

Perrie AC. 2019. *Tadpole shrimp survey Sept 2019: Wairio & Parera Road*. Unpublished report for Greater Wellington Regional Council.

Resource Management Act 1991.

<https://www.legislation.govt.nz/act/public/1991/0069/latest/DLM230265.html>

O'Donnell CFJ. 2000. *Distribution, status and conservation of long-tailed bat (Chalinolobus tuberculatus) communities in Canterbury, New Zealand*. Unpublished Report UOO/38. Environment Canterbury.

O'Donnell CFJ, Borkin KM, Christie J, Davidson-Watts I, Dennis G, Pryde M and Michel P. 2022. *Conservation status of bats in Aotearoa New Zealand, 2022*. Department of Conservation, Wellington.

McDowall RM. 2000: *The Reed Field Guide to New Zealand Freshwater Fish*. Reed Publishing (NZ) Ltd, Auckland

Melchior M, Squires NJ, Clearwater SJ and Collier KJ. 2023. Discovery of a host fish species for the threatened New Zealand freshwater mussel *Echyridella aucklandica* (Bivalve: Unionida: Hyridae). *New Zealand Journal of Marine and Freshwater Research* 57: 152-159.

Robertson HA, Baird KA, Elliot GP, Hitchmough RA, McArthur NJ, Makan T, Miskelly CM, O'Donnell CJ, Sagar PM, Scofield RP, Taylor GA and Michel P. 2021. Conservation status of birds in Aotearoa New Zealand 2021. *New Zealand Threat Classification Series* 36. Department of Conservation, Wellington. 43 p.

Rolfe JR, Fife AJ, Beever JE, Brownsey PJ and Hitchmough RA. 2016. Conservation status of New Zealand mosses 2014. *New Zealand Threat Classification Series* 13. 12 p

Storey R, Kilroy C, Matheson F, Neale M, Crow S and Whitehead A. 2018. *Scoping indicators for impacts on freshwater biodiversity and ecosystem processes of rivers and streams*. NIWA client report 20118118HN to Ministry for the Environment.

Thorsen M. 2022a. *Mapping threatened and rare freshwater-dependent flora and fauna within the Bay of Plenty region, December 2021*. Ahika Consulting Report for Bay of Plenty Regional Council.

Thorsen M. 2022b. *Mapping threatened and rare freshwater-dependent flora and fauna within the Otago region, April 2022*. Ahika Consulting Report for Otago Regional Council.

Townsend AJ, de Lange PJ, Duffy CAJ, Miskelly C M, Molloy J, Norton DA. 2007. *New Zealand Threat Classification System manual*. Department of Conservation, Wellington. 35p.

Whatley M. 2020. *Identifying the location of freshwater habitats of threatened species in New Zealand: A summary of current tools and resources*. Unpub. Adaptive Environmental Consulting Report to Ministry for the Environment.

Wilderlab. 2022. Retrieved freshwater fish data from <https://www.wilderlab.co.nz/>

## Appendix A

### **Table A1: NPS-FM Threatened freshwater species observations**

PDF attached separately: NPS-FM Threatened freshwater species observations Table A1.xlsx

## Appendix B

**Table B1: Nationally Threatened species in the Wellington Region not selected for inclusion**

Taxonomic name	Maori/Common name	NZTCS publication <sup>1</sup>	National threat ranking	Reason for exclusion
<i>Deinacrida rugosa</i>	Cook Strait giant wētā	Orthoptera 2022	Vulnerable	Terrestrial
<i>Ornithonyssus spinosa</i>	Mite on pekapeka /long-tailed bat	Parasitic mites and ticks (Acari) 2021	Critical	Host not a freshwater species
<i>Alloptes (Sternalloptes) oxylobus</i>	Mite on Tarāpunga/ red-billed gull)	Parasitic mites and ticks (Acari) 2021	Vulnerable	Host not a freshwater species
<i>Guntheria (Derrickiella) apteryxi</i>	Mite on kiwi-nui /North Island brown kiwi	Parasitic mites and ticks (Acari) 2021	Vulnerable	Host not a freshwater species
<i>Ixodes jacksoni</i>	Tick on kawau tikitiki/ spotted shag	Parasitic mites and ticks (Acari) 2021	Vulnerable	Host not a freshwater species
<i>Dermanyssus</i> sp.1 “North Island saddleback”	Mite on Tieke/ North Island saddleback	Parasitic mites and ticks (Acari) 2021	Vulnerable	Host not a freshwater species
<i>Charadrius obscurus aquilonius</i>	Northern New Zealand dotterel	Birds 2021	Increasing	Coastal species
<i>Chidonias albostratus</i>	Tarapirohe/ black-fronted tern	Birds 2021	Endangered	Marine/coastal species in region
<i>Egretta sacra sacra</i>	Matuku moana/ reef heron	Birds 2021	Endangered	Coastal species
<i>Eudyamys taitensis</i>	Koekoeā/ long-tailed cuckoo	Birds 2021	Vulnerable	Forest species
<i>Hymenolaimus malacorhynchos</i>	Whio/blue duck	Birds 2021	Vulnerable	Individuals have been seen in the Tararuas, but not breeding
<i>Nestor meridionalis meridionalis</i>	Kākā/ North Island kaka	Birds 2021	Vulnerable	Forest species
<i>Stictocarbo punctatus</i>	Kawau tikitiki/ spotted shag	Birds 2021	Vulnerable	Coastal species
<i>Falco novaeseelandiae ferox</i>	Kārearea/ bush falcon	Birds 2021	Increasing	Forest species
<i>Oligosoma</i> aff. <i>infrapunctatum</i> “Southern North Island”	Kupe skink	Reptiles 2021	Critical	Terrestrial
<i>Oligosoma whitakeri</i>	Whitaker’s skink	Reptiles 2021	Endangered	Terrestrial
<i>Prasmiola unica</i>	Harvestman	Minor invertebrate groups 2012	Critical	Terrestrial

<b>Taxonomic name</b>	<b>Common/Maori name</b>	<b>NZTCS publication</b>	<b>National threat ranking</b>	<b>Reason for exclusion</b>
<i>Cortinarius gemmeus</i>	Agaric mushroom	Non-lichenised agarics, boletes and russuloid fungi	Vulnerable	Terrestrial: Mt Holdsworth
<i>Inocybe amygdalina</i>	Agaric mushroom	Non-lichenised agarics, boletes and russuloid fungi	Vulnerable	Terrestrial Wellington City
<i>Laccaria paraphysata</i>	Agaric mushroom	Non-lichenised agarics, boletes and russuloid fungi	Vulnerable	Terrestrial Muritai
<i>Russula albolutescens</i>	Russuloid mushroom	Non-lichenised agarics, boletes and russuloid fungi	Vulnerable	Terrestrial Fensham
<i>Russula allochroa</i>	Russuloid mushroom	Non-lichenised agarics, boletes and russuloid fungi	Vulnerable	Terrestrial Rimutaka FP, Tararua FP, Mana Island
<i>Russula aucklandica</i>	Russuloid mushroom	Non-lichenised agarics, boletes and russuloid fungi	Vulnerable	Terrestrial Fensham
<i>Russula multicystidiata</i>	Russuloid mushroom	Non-lichenised agarics, boletes and russuloid fungi	Vulnerable	Terrestrial Keith George, Mt Holdsworth
<i>Russula vinaceocuticulata</i>	Russuloid mushroom	Non-lichenised agarics, boletes and russuloid fungi	Vulnerable	Terrestrial Akatarawa Saddle
<i>Dione arcuata</i>	Red seaweed	Macroalgae 2019	Critical	Coastal
<i>Gelidium johnstonii</i>	Red seaweed	Macroalgae 2019	Critical	Coastal
<i>Gigartina dilatata</i>	Red seaweed	Macroalgae 2019	Critical	Coastal
<i>Prasionema heeschiai</i>	Green seaweed	Macroalgae 2019	Critical	Coastal
<i>Gigartina</i> sp. C	Red seaweed	Macroalgae 2019	Critical	Coastal
<i>Prasiola</i> sp. A	Green seaweed	Macroalgae 2019	Critical	Coastal
<i>Prasiola novaezelandiae</i>	Green seaweed	Macroalgae 2019	Endangered	Coastal
<i>Orcinus orca</i>	Orca, killer whale	Marine mammals 2019	Critical	Coastal (visit Wellington Harbour regularly)
<i>Cladia blanchonii</i>	Lichen	Lichens and lichenicolous fungi 2018	Vulnerable	Rocky outcrops or mossy soil
<i>Ramalina pacifa</i>	Lichen	Lichens and lichenicolous fungi 2018	Vulnerable	Coastal

<b>Taxonomic name</b>	<b>Common/Maori name</b>	<b>NZTCS publication</b>	<b>National threat ranking</b>	<b>Reason for exclusion</b>
<i>Carcharodon carcharias</i>	Great white shark	Chondrichthyans (chimaeras, sharks and rays) 2016	Endangered	Deep sea
<i>Cetorhinus maximus</i>	Basking shark	Chondrichthyans (chimaeras, sharks and rays) 2016	Vulnerable	Deep sea
<i>Mystacina tuberculatus rhyacobia</i>	Pekepeka/central lesser short-tailed bat	Bats 2017	Declining	Terrestrial
<i>Orthoclydon pseudostinaria</i>	Looper moth	Lepidoptera (butterflies and moths) 2015	Critical	Terrestrial
<i>Notoreas peronata</i> subsp "Castlepoint"	Pimelea moth	Lepidoptera (butterflies and moths) 2015	Critical	Terrestrial
" <i>Schiffermuelleria</i> " <i>orthophanes</i>	Looper moth	Lepidoptera (butterflies and moths) 2015	Critical	Terrestrial
<i>Didymodon calycinus</i>	Moss	Mosses 2014	Critical	Terrestrial
<i>Porribus pacificus</i>	Bat flea	Fleas 2014	Vulnerable	Terrestrial
<i>Smeagol climoi</i>	Gravel maggot	Marine invertebrates 2013	Critical	Marine
<i>Spio aequalis</i>	Giant spionid worm	Marine invertebrates 2013	Endangered	Marine
<i>Chathamisis bayeri</i>	Bamboo coral	Marine invertebrates 2013	Vulnerable	Deep marine
<i>Paragorgia alisonae</i>	Bubblegum coral	Marine invertebrates 2013	Vulnerable	Deep marine
<i>Atriplex buchananii</i>	Buchanan's orache	Vascular plants 2017	Vulnerable	Coastal, clay
<i>Anogramma leptophylla</i>	Jersey fern	Vascular plants 2017	Vulnerable	Banks
<i>Brachyglottis pentacopa</i>		Vascular plants 2017	Critical	Shrublands
<i>Brachyglottis kirkii</i> var <i>kirikii</i>	Kohurangi/ Kirk's daisy	Vascular plants 2017	Vulnerable	Epiphytic
<i>Dactylanthus taylorii</i>	Pua o te rēinga, wood rose	Vascular plants 2017	Vulnerable	Forest
<i>Gastrodia cooperae</i>	Cooper's black orchid	Vascular plants 2017	Critical	Forest
<i>Geranium retrorsum</i>	Turnip-rooted geranium	Vascular plants 2017	Vulnerable	Clay pans and rocky coast
<i>Korthasella salicorioides</i>	Dwarf mistletoe	Vascular plants 2017	Critical	Forest and shrublands
<i>Kunzea serotina</i>	Makahikātoa/kanuka	Vascular plants 2017	Vulnerable	Montane, subalpine forest
<i>Lepidium oleraceum</i>	Nau/Cook's scurvy grass	Vascular plants 2017	Endangered	Coastal, friable soil



Taxonomic name	Common/Maori name	NZTCS publication	National threat ranking	Reason for exclusion
<i>Leptinella nana</i> <sup>2</sup>	Pygmy button daisy	Vascular plants 2017	Critical	Cliff-top grassland
<i>Muehlenbeckia astonii</i>	Shrubby tororaro, mingimingi	Vascular plants 2017	Endangered	Grey scrub
<i>Myosotis brevis</i>		Vascular plants 2017	Vulnerable	Shingle habitat
<i>Olearia gardneri</i> <sup>2</sup>	Deciduous tree daisy	Vascular plants 2017	Endangered	Forests on calcareous siltstones
<i>Pimelea</i> aff. <i>aridula</i>		Vascular plants 2017	Endangered	Rocky habitat
<i>Pimelea</i> aff. <i>villosa</i>		Vascular plants 2017	Endangered	Sand dunes
<i>Pimelea tomentosa</i>		Vascular plants 2017	Vulnerable	Cliff tops, seral habitats
<i>Pittosporum obcordatum</i> <sup>2</sup>	Heart-leaved kohuhu	Vascular plants 2017	Vulnerable	Forest
<i>Pterostylis irwinii</i>	Greenhood	Vascular plants 2017	Endangered	Montane
<i>Rorippa divaricata</i> <sup>2</sup>	Matangoa, NZ watercress	Vascular plants 2017	Vulnerable	Disturbed ground
<i>Sebaea ovata</i>	Sebaea	Vascular plants 2017	Critical	Regionally extinct
<i>Simplicia felix</i>		Vascular plants 2017	Critical	Forest
<i>Solanum aviculare</i> var. <i>aviculare</i>	Poroporo	Vascular plants 2017	Vulnerable	Open shrubland
<i>Urticularia australis</i>	Yellow bladderwort	Vascular plants 2017	Critical	Regionally extinct

1: As published on <https://www.doc.govt.nz/about-us/science-publications/conservation-publications/nz-threat-classification-system/>

2: Species were identified as freshwater species by Champion 2021, but observation locations in the Wellington Region were not freshwater habitats

## Table B2: Threatened freshwater species locations not selected for inclusion

PDF document attached separately: Excluded Threatened freshwater species observations Table B2.docx

## Appendix C

**Table C1: NPS-FM threatened species locations in NRP scheduled sites**

PDF attached separately: NPS-FM Threatened species locations scheduled Table C1.xlsx

**Table C2: Identified NPS-FM threatened species locations not in NRP scheduled sites**

Maori/common name	Scientific name	Location	Maps	Easting	Northing
Pateke/brown teal	<i>Anas chlorotis</i>	Zealandia dam	Karori Dam, Karori Reservoir <sup>1</sup>	1746493	5427069
Water brome	<i>Amphibromus fluitans</i>	Ica Station wetland	Amp flu Ica Station <sup>2</sup>	1857394	5463484
Sneezeweed	<i>Centipeda minima</i> subsp. <i>minima</i>	Raumati South Peatlands A wetland	Raumati South Peatlands A <sup>1</sup>	1767656	5467212
Sneezeweed	<i>Centipeda minima</i> subsp. <i>minima</i>	Boar Creek Reserve	New map	1794235	5447907
Purple stonecrop	<i>Crassula peduncularis</i>	Cape Palliser North wetland	Cape Palliser North Fen 7 <sup>1</sup>	1792277	5391224
Purple stonecrop	<i>Crassula peduncularis</i>	Palliser Bay wetland	Cra ped 1 <sup>2</sup>	1792337	5391237
Purple stonecrop	<i>Crassula peduncularis</i>	Te Awaiti wetland	Cra ped 5 <sup>2</sup>	1821649	5409306
Purple stonecrop	<i>Crassula peduncularis</i>	Turakirae wetland	Cra ped 9 <sup>2</sup>	1758785	5413246
Purple stonecrop	<i>Crassula peduncularis</i>	Orongorongo Station wetland	Cra ped 8 <sup>2</sup>	1759621	5413228
Purple stonecrop	<i>Crassula peduncularis</i>	Orongorongo Station	Cra ped 10 <sup>2</sup>	1758827	5415096
Purple stonecrop	<i>Crassula peduncularis</i>	Mangatoetoe Stream	Cra ped 4 <sup>2</sup>	1788149	5392276

Maori/common name	Scientific name	Location	Maps	Easting	Northing
Purple stonecrop	<i>Crassula peduncularis</i>	Mangatoetoe Stream	Cra ped 3 <sup>2</sup>	1788060	5392156
Purple stonecrop	<i>Crassula peduncularis</i>	South of Glenburn Station	Cra ped 7 <sup>2</sup>	1836702	5419126
Purple stonecrop	<i>Crassula peduncularis</i>	North of Honeycomb Rock	Cra ped 6 <sup>2</sup>	1835612	5418201
Purple stonecrop	<i>Crassula peduncularis</i>	North of Otarei River	Cra ped 11 <sup>2</sup>	1821579	5409125
	<i>Gratiola concinna</i>	Highden QEII covenant wetland	Gra con 2 <sup>2</sup>	1818308	5476512
	<i>Gratiola concinna</i>	Next to Highden Covenant	Gra con 1 <sup>2</sup>	1818393	5467410
Leafless rush	<i>Juncus pauciflorus</i>	Mangaroa Swamp	Mangaroa Swamp map sent to UHCC <sup>3</sup>	1775909	5445220
Dwarf musk	<i>Juncus holoschoenus</i> var <i>holoschoenus</i>	Pahaoa gorge	Jun hol <sup>2</sup>	1823569	5419677
Dwarf musk	<i>Mazus novaezeelandiae</i> subsp. <i>impolitus</i>	Wetland up from Pahaoa	Maz nov imp 6 <sup>2</sup>	1828803	5414180
Dwarf musk	<i>Mazus novaezeelandiae</i> subsp. <i>impolitus</i>	Wetland north of Awhea	Maz nov imp 5 <sup>2</sup>	1813353	5403269
Dwarf musk	<i>Mazus novaezeelandiae</i> subsp. <i>impolitus</i>	Along Pahaoa River	Maz nov imp 3 <sup>2</sup>	1828803	5414180
Dwarf musk	<i>Mazus novaezeelandiae</i> subsp. <i>impolitus</i>	South of Pahaoa River Mouth	Maz nov imp 7 <sup>2</sup>	1827117	5413275
Swamp orchid	<i>Pterostylis micromega</i>	Ruamahanga north of Martinborough	Pte mic <sup>2</sup>	1808982	5440156

Maori/common name	Scientific name	Location	Maps	Easting	Northing
Swamp orchid	<i>Pterostylis micromega</i>	Mangaroa Swamp	Mangaroa Swamp map sent to UHCC <sup>3</sup>	1773964	5443719
Moss	<i>Fissidens berteroi</i>	Bridge over Barton's outflow (Lake Wairarapa)	New waterway map	1793697	5344114
Moss	<i>Fissidens berteroi</i>	Western side of lake near DOC reserve	New waterway map	1783108	5434581
Moss	<i>Fissidens berteroi</i>	Abbotts Creek	New waterway map	1792103	5443205
Moss	<i>Fissidens berteroi</i>	Makoura Stream	New waterway map	1823665	5462724
Moss	<i>Fissidens berteroi</i>	Zealandia	New waterway map	1746409	5426999
Moss	<i>Fissidens berteroi</i>	Kurupuni Stream	New waterway map	1822960	5462458

1: Wetlands Scientific GIS layer 2021

2: J:\TERRESTRIAL BIODIVERSITY (new)\Conservation planning\Species distributions\Plants\Threatened species

3: J:\TERRESTRIAL BIODIVERSITY (new)\Assessments and advice\Wetland Delineations

Table A1: NPS-FM Threatened freshwater species observations

Species type	Species Name	Maori Name	Common Name	Threat Ranking	Freshwater Rating	Waterbody/Site	Schedule F1 name location	Other locations	Easting	Northing	Observation source	Critical requirements	Critical requirements reference	Water level	Water quality	Pests	Habitat disturbance	Connectivity	Riparian habitat at spawning site	Grazing	
Bird	<i>Botaurus poeciloptilus</i>	Matuku-hōrepo	Australasian bittern	Nationally Critical	Obligate	Wairarapa Moana (whole wetland complex)	Schedule A3: Wetlands with outstanding indigenous biodiversity values (Eastern Lake Wairarapa), Schedule F2b: Significant habitats for indigenous birds in lakes (Lake Wairarapa), Schedule F2c: Significant habitats for indigenous birds in the coastal marine area (Lake Onoke), Schedule F3: Identified natural wetlands (Boggy Pond/Matthews Lagoon, JK Donald/Tairoa Wetlands, Lake Domain Reserve, Pounui Lagoon, Taaheremikau Delta, Western Alsops Bay Wetlands, Wairongomai River Mouth.		1790011	5431053	eBird, GW/DOC monitoring data	Known breeding site in wetlands around Lake Wairarapa and Lake Onoke. Requires good food supply and clear water to fish, as need to be able to see prey to fish. Food mainly fish, but also spiders, molluscs, worms, freshwater crayfish, frogs and lizards	Birds Online	Y	Not sure	Y	Y	na	na	na	na
Bird	<i>Botaurus poeciloptilus</i>	Matuku-hōrepo	Australasian bittern	Nationally Critical	Obligate	All wetlands and streams within 15km of Wairarapa Moana	Schedule F3: Significant Natural Wetlands	Wetlands in Wetlands - Scientific 2021 that aren't in F3, Main Rivers and streams within 15km	1790011	5431053	eBird	Adult birds need a network of wetlands within 15km radius, use cover around lakes and creeks, as well as rank grass along drain edges in paddocks	Birds online	Y	Not sure	Y	Y	na	na	na	na
Bird	<i>Botaurus poeciloptilus</i>	Matuku-hōrepo	Australasian bittern	Nationally Critical	Obligate	Waikanae Estuary	Schedule A3: Wetlands with outstanding indigenous biodiversity values (Waikanae River Mouth)		1769459	5472778	eBird, multiple at the estuary	Thought to be a breeding site, as for Wairarapa Moana	Birds online	Y	Not sure	Y	Y	na	na	na	na
Bird	<i>Botaurus poeciloptilus</i>	Matuku-hōrepo	Australasian bittern	Nationally Critical	Obligate	All wetlands and streams within 15km of Waikanae Estuary	Schedule F3: Significant Natural Wetlands	Wetlands in Wetlands - Scientific 2021 that aren't in F3, Main Rivers and streams within 15km	1769459	5472778	eBird, Te Harakeke sighting	Food supply - as for Wairarapa Moana	Birds online	Y	Not sure	Y	Y	na	na	na	na
Bird	<i>Botaurus poeciloptilus</i>	Matuku-hōrepo	Australasian bittern	Nationally Critical	Obligate	Huritini Swamp	Schedule F3: Significant Natural Wetlands		1782228	5490868	Huritini (GW wetland monitoring programme - owner observations), Hugh Robertson	Thought to be a breeding site, as for Wairarapa Moana	Birds online	Y	Not sure	Y	Y	na	na	na	na
Bird	<i>Botaurus poeciloptilus</i>	Matuku-hōrepo	Australasian bittern	Nationally Critical	Obligate	All wetlands and streams within 15km of Huritini Swamp	Schedule F3: Significant Natural Wetlands	Wetlands in Wetlands - Scientific 2021 that aren't in F3, Main Rivers and streams within 15km	1782228	5490868	eBird South Waikawa Beach dune lake, Ngātotara Lagoon, Lake Wairongomai observations, Waitohu wetlands survey report (GW - John Cheyney)	Food supply - as for Wairarapa Moana	Birds online	Y	Not sure	Y	Y	na	na	na	na
Bird	<i>Botaurus poeciloptilus</i>	Matuku-hōrepo	Australasian bittern	Nationally Critical	Obligate	Pauatahanui inlet (foraging habitat)	Schedule F2c: Significant habitats for indigenous birds in the coastal marine area (Te Awara-o- Porirua Harbour - Fauatahanui Arm, Te Awara-o- Porirua Harbour - Onepoto Arm)		1758552	5449627	eBird observations	Visit for food	Birds online	Y	Not sure	Y	Y	na	na	na	na
Bird	<i>Botaurus poeciloptilus</i>	Matuku-hōrepo	Australasian bittern	Nationally Critical	Obligate	Tuturumuri Swamp C	Schedule F3: Significant Natural Wetlands		1807759	5412064	eBird observation	Visit for food	Birds online	Y	Not sure	Y	Y	na	na	na	na
Bird	<i>Botaurus poeciloptilus</i>	Matuku-hōrepo	Australasian bittern	Nationally Critical	Obligate	All wetlands and streams within 15km of Tuturumuri Swamp C	Schedule F3: Significant Natural Wetlands	Wetlands in Wetlands - Scientific 2021 that aren't in F3, Main Rivers and streams within 15km	1807759	5412064	eBird observation, Nikki McArthur	Thought to be a breeding site, as for Wairarapa Moana	Birds online	Y	Not sure	Y	Y	na	na	na	na
Bird	<i>Botaurus poeciloptilus</i>	Matuku-hōrepo	Australasian bittern	Nationally Critical	Obligate	Waitohu Stream Mouth (foraging habitat)	Schedule F2c: Significant habitats for indigenous birds in the coastal marine area (Waitohu Stream Mouth)		1780072	5489002	eBird observation, Hugh Robertson	Visit for food	Birds online	Y	Not sure	Y	Y	na	na	na	na
Bird	<i>Ardea alba modesta</i>	Kōtuku	White heron	Nationally Critical - Region	Obligate	Wairarapa Moana wetlands	Schedule A3: Wetlands with outstanding indigenous biodiversity values (Eastern Lake Wairarapa), Schedule F2b: Significant habitats for indigenous birds in lakes (Lake Wairarapa), Schedule F3: Identified natural wetlands (Boggy Pond/Matthews Lagoon		1790011	5431053	eBird observation - Boggy Pond and Wairoa	Breed outside the region, but visits for food. Feed on small fish, frogs, lizards and invertebrates	Birds Online	Y	Not sure	N	N	na	na	na	na
Bird	<i>Ardea alba modesta</i>	Kōtuku	White heron	Nationally Critical - Region	Obligate	Hutt estuary	Schedule F2: Significant habitats for indigenous birds (Te Awa Kairangi/ Hutt River (mouth to 1.3km upstream)		1759110	5433028	eBird observations	Breed outside the region, but visits for food. Feed on small fish, frogs, lizards and invertebrates	Birds Online	Y	Not sure	N	N	na	na	na	na
Bird	<i>Anas superciliosa</i>	Pāpera	Grey duck	Nationally vulnerable	Obligate	Wairarapa Moana	Schedule F2b: Significant habitats for indigenous birds in lakes (Lake Wairarapa), Schedule F3: Identified natural wetlands (Boggy Pond/Matthews Lagoon, JK Donald/Tairoa Wetlands, Lake Domain Reserve, Pounui Lagoon		1790011	5431053	eBird observations - only used those of experienced birders where they detailed the distinctive features	While pure grey duck populations are rare, as hybridisation is occurring with mallards, this species is thought to still be present in more remote locations. Nest under cover next to water bodies and eat seeds, aquatic plant species, but also insects, freshwater snails and worms	NZTCS assessment, Birds Online	Y	Not sure	Y	Y	na	na	na	na
Bird	<i>Anas superciliosa</i>	Pāpera	Grey duck	Nationally vulnerable	Obligate	Pahaoa River	Schedule F2c: Significant habitats for indigenous birds in the coastal marine area (Pahaoa Estuary and Pahaoa Scientific Reserve)		1827506	5413735	Nikki McArthur eBird observation	As for Wairarapa Moana	NZTCS assessment, Birds Online	Y	Not sure	Y	Y	na	na	na	na
Bird	<i>Anas superciliosa</i>	Pāpera	Grey duck	Nationally vulnerable	Obligate	Burkhart Wetland	Schedule F3: Identified natural wetlands (Burkhart Wetlands)		1848322	5430311	Stuart Nicholson eBird observation	As for Wairarapa Moana	NZTCS assessment, Birds Online	Y	Not sure	Y	Y	na	na	na	na
Bird	<i>Anas superciliosa</i>	Pāpera	Grey duck	Nationally vulnerable	Obligate	Tuturumuri Swamp B	Schedule F3: Identified natural wetlands (Tuturumuri Swamp B)		1807756	5412533	Nikki McArthur eBird observation	As for Wairarapa Moana	NZTCS assessment, Birds Online	Y	Not sure	Y	Y	na	na	na	na
Bird	<i>Anas superciliosa</i>	Pāpera	Grey duck	Nationally vulnerable	Obligate	Tuturumuri Swamp A	Schedule F3: Identified natural wetlands (Tuturumuri Swamp B)		1807762	5412046	Joanna McVeagh eBird observation	As for Wairarapa Moana	NZTCS assessment, Birds Online	Y	Not sure	Y	Y	na	na	na	na

Species type	Species Name	Maori Name	Common Name	Threat Ranking	Freshwater Rating	Waterbody/Site	Schedule F1 name location	Other locations	Easting	Northing	Observation source	Critical requirements	Critical requirements reference	Water level	Water quality	Pests	Habitat disturbance	Connectivity	Riparian habitat at Grazing spawning site
Bird	<i>Anas superciliosa</i>	Pātera	Grey duck	Nationally vulnerable	Obligate	Te Harakeke Swamp	Schedule A3: Wetlands with outstanding indigenous biodiversity values (Te Harakeke Swamp)		1772387	5476239	Ian Armitage eBird observation	As for Wairarapa Moana	NZTCS assessment, Birds Online	Y	Not sure	Y	Y	na	na
Bird	<i>Anas superciliosa</i>	Pātera	Grey duck	Nationally vulnerable	Obligate	Waikanae Estuary	Schedule F1c: Significant habitats for indigenous birds in the coastal marine area (Waikanae River Mouth)		1769459	5472778	Pauline and Ray Priest photo	As for Wairarapa Moana	NZTCS assessment, Birds Online	Y	Not sure	Y	Y	na	na
Bird	<i>Hydroprogne caspia</i>	Taranui	Caspian tern	Nationally vulnerable	Facultative	Lake Onoke	Schedule F2c: Significant habitats for indigenous birds in the coastal marine area (Lake Onoke)		1778075	5417073	Wairarapa Birds NZ	Breeds on Onoke spit (only known breeding site in the region). Uses lakes and rivers to feed as well as shallow coastal waters. Feed mostly on small surface-swimming fish such as yellow-eyed mullet, piper and smelt. Also recordings of feeding on crickets and marine worms through probing in soft mud and wading in shallow water.	Birds Online	Y	Not sure	Y	Y	na	na
Bird	<i>Hydroprogne caspia</i>	Taranui	Caspian tern	Nationally vulnerable	Facultative	Lake Wairarapa	Schedule F2b: Significant habitats for indigenous birds in lakes (Lake Wairarapa)		1790011	5431053	Wairarapa Birds NZ, GW/DOC lake-edge surveys	Have tried nesting on one of the western river deltas feeding into the lake. As for Wairarapa Moana	Birds Online	Y	Not sure	Y	Y	na	na
Bird	<i>Hydroprogne caspia</i>	Taranui	Caspian tern	Nationally vulnerable	Facultative	Wellington Harbour	Schedule F2c: Habitats for indigenous birds in the coastal marine area (Wellington Harbour (Port Nicholson)-inland waters)		1754073	5422368	eBird observations, GWRC coastal surveys	Visit for food	Birds Online	Y	Not sure	Y	Y	na	na
Bird	<i>Hydroprogne caspia</i>	Taranui	Caspian tern	Nationally vulnerable	Facultative	Wellington Harbour	Schedule F2c: Habitats for indigenous birds in the coastal marine area (Wellington Harbour (Port Nicholson) Pencarrow Sewer Outfall to Burdan's Gate)		5419043	1756400	GWRC coastal surveys	Visit for food	Birds Online	Y	Not sure	Y	Y	na	na
Bird	<i>Hydroprogne caspia</i>	Taranui	Caspian tern	Nationally vulnerable	Facultative	Makara Estuary	Schedule F2c: Habitats for indigenous birds in the coastal marine area (Makara Estuary)		1743821	5435271	eBird observations, GWRC coastal surveys	Visit for food	Birds Online	Y	Not sure	Y	Y	na	na
Bird	<i>Hydroprogne caspia</i>	Taranui	Caspian tern	Nationally vulnerable	Facultative	Porirua Harbour	Schedule F2c: Habitats for indigenous birds in the coastal marine area (Te Awaiuru-o-Porirua Harbour - Pauatahanui Arm, Onepoto Arm)]		1758552	5449627	eBird observations, GWRC coastal surveys	Visit for food	Birds Online	Y	Not sure	Y	Y	na	na
Bird	<i>Hydroprogne caspia</i>	Taranui	Caspian tern	Nationally vulnerable	Facultative	Waikanae Estuary	Schedule F2c: Habitats for indigenous birds in the coastal marine area (Waikanae River Mouth)		1769459	5472778	eBird observations, GWRC coastal surveys	Visit for food	Birds Online	Y	Not sure	Y	Y	na	na
Bird	<i>Hydroprogne caspia</i>	Taranui	Caspian tern	Nationally vulnerable	Facultative	Waitohu Stream Mouth	Schedule F2c: Habitats for indigenous birds in the coastal marine area (Waitohu Stream Mouth)		1779100	5489385	eBird observations, GWRC coastal surveys	Visit for food	Birds Online	Y	Not sure	Y	Y	na	na
Bird	<i>Hydroprogne caspia</i>	Taranui	Caspian tern	Nationally vulnerable	Facultative	Otaki River Mouth	Schedule F2c: Habitats for indigenous birds in the coastal marine area (Otaki River Mouth)		1775818	5482543	eBird observations, GWRC coastal surveys	Visit for food	Birds Online	Y	Not sure	Y	Y	na	na
Bird	<i>Hydroprogne caspia</i>	Taranui	Caspian tern	Nationally vulnerable	Facultative	Kapiti Island foreshore	Schedule F2c: Habitats for indigenous birds in the coastal marine area (Kapiti Island foreshore)		1757535	5472534	GWRC coastal surveys	Visit for food	Birds Online	Y	Not sure	Y	Y	na	na
Bird	<i>Hydroprogne caspia</i>	Taranui	Caspian tern	Nationally vulnerable	Facultative	Paraparaumu foreshore	Schedule F2c: Habitats for indigenous birds in the coastal marine area (Paraparaumu Beach)		5471985	1767075	GWRC coastal surveys	Visit for food	Birds Online	Y	Not sure	Y	Y	na	na
Bird	<i>Hydroprogne caspia</i>	Taranui	Caspian tern	Nationally vulnerable	Facultative	White Rock	Schedule F2c: Habitats for indigenous birds in the coastal marine area (White Rock to Te Kaukau Point)		5395390	1801190	GWRC coastal surveys	Visit for food	Birds Online	Y	Not sure	Y	Y	na	na
Bird	<i>Hydroprogne caspia</i>	Taranui	Caspian tern	Nationally vulnerable	Facultative	Tora coast	Schedule F2c: Habitats for indigenous birds in the coastal marine area (Tora Coast)		5397956	1806302	GWRC coastal surveys	Visit for food	Birds Online	Y	Not sure	Y	Y	na	na
Bird	<i>Hydroprogne caspia</i>	Taranui	Caspian tern	Nationally vulnerable	Facultative	Onoke Spit Barrier (breeding site)	Schedule F2c: Habitats for indigenous birds in the coastal marine area (Onoke Spit Barrier)		1776540	5416113	GWRC coastal surveys, Forest and Bird	Breeds on Onoke spit (only known breeding site in the region). Uses lakes and rivers to feed as well as shallow coastal waters. Feed mostly on small surface-swimming fish such as yellow-eyed mullet, piper and smelt. Also recordings of feeding on crickets and marine worms through probing in soft mud and wading in shallow water.	Birds Online	Y	Not sure	Y	Y	na	na
Bird	<i>Hydroprogne caspia</i>	Taranui	Caspian tern	Nationally vulnerable	Facultative	Ngakauau Stream mouth	Schedule F2c: Habitats for indigenous birds in the coastal marine area (Ngakauau Stream mouth)	New change to schedule	1868021	5464302	GWRC coastal surveys	Visit for food	Birds Online	Y	Not sure	Y	Y	na	na
Bird	<i>Hydroprogne caspia</i>	Taranui	Caspian tern	Nationally vulnerable	Facultative	Ngawi foreshore north	Schedule F2c: Habitats for indigenous birds in the coastal marine area (Ngawi Foreshore North)	New change to schedule	1785393	5395367	GWRC coastal surveys	Visit for food	Birds Online	Y	Not sure	Y	Y	na	na
Bird	<i>Hydroprogne caspia</i>	Taranui	Caspian tern	Nationally vulnerable	Facultative	Uruti Point	Schedule F2c: Habitats for indigenous birds in the coastal marine area (Uruti Point)	New change to schedule	1857271	5442689	GWRC coastal surveys	Visit for food	Birds Online	Y	Not sure	Y	Y	na	na
Bird	<i>Hydroprogne caspia</i>	Taranui	Caspian tern	Nationally vulnerable	Facultative	Waimimiha coastline	Schedule F2c: Habitats for indigenous birds in the coastal marine area (Waimimiha coastline)	New change to schedule	1863622	5458541	GWRC coastal surveys	Visit for food	Birds Online	Y	Not sure	Y	Y	na	na
Bird	<i>Hydroprogne caspia</i>	Taranui	Caspian tern	Nationally vulnerable	Facultative	Whakataki River mouth	Schedule F2c: Habitats for indigenous birds in the coastal marine area (Whakataki River mouth)	New change to schedule	1872013	5470553	GWRC coastal surveys	Visit for food	Birds Online	Y	Not sure	Y	Y	na	na
Bird	<i>Hydroprogne caspia</i>	Taranui	Caspian tern	Nationally vulnerable	Facultative	Wairongomai River Mouth (breeding site)	Schedule F3: Identified natural wetlands (Wairongomai River Mouth)		1782386	5430396	Forest and Bird	Possible breeding site, as for Onoke Spit	Birds Online	Y	Not sure	Y	Y	na	na
Bird	<i>Hydroprogne caspia</i>	Taranui	Caspian tern	Nationally vulnerable	Facultative	Baring Head coastline	Schedule F2c: Habitats for indigenous birds in the coastal marine area (Baring Head/Draupounai coastline)		1756035	5414879	GWRC coastal surveys	Visit for food	Birds Online	Y	Not sure	Y	Y	na	na

Species type	Species Name	Maori Name	Common Name	Threat Ranking	Freshwater Rating	Waterbody/Site	Schedule F1 name location	Other locations	Easting	Northing	Observation source	Critical requirements	Critical requirements reference	Water level	Water quality	Pests	Habitat disturbance	Connectivity	Riparian habitat at spawning site	Grazing
Bird	<i>Hydroprogne caspia</i>	Tararui	Caspian tern	Nationally vulnerable	Facultative	Baring Head coastline	Schedule F2c: Habitats for indigenous birds in the coastal marine area (Riversdale Beach & Motuwaireka Stream mouth)		1858793	5447413	GWRC coastal surveys	Visit for food	Birds Online	Y	Not sure	Y	Y	na	na	na
Bird	<i>Anarhynchus frontalis</i>	Ngutu-pare	Wrybill	Nationally Increasing	Obligate	Lake Wairarapa	Schedule A3: Wetlands with outstanding indigenous biodiversity values (Eastern Lake Wairarapa), Schedule F2b: Significant habitats for indigenous birds in lakes (Lake Wairarapa)		1790011	5431053	GW/DOC lakeshore surveys	Breeds outside region (51 braided rivers), but entire population migrates north to winter in the harbours of the NI. Feed mainly on inter-tidal mudflats. Eat a range of aquatic invertebrates, as well as annelid and polychaete worms and small molluscs	Birds Online	Y	Not sure	N	Y	na	na	na
Bird	<i>Anarhynchus frontalis</i>	Ngutu-pare	Wrybill	Nationally Increasing	Obligate	Lake Onoke	Schedule F2c: Significant habitats for indigenous birds in the coastal marine area (Lake Onoke)		1778587	5415851	GWRC coastal surveys	As for Lake Wairarapa	Birds Online	Y	Not sure	N	Y	na	na	na
Bird	<i>Anarhynchus frontalis</i>	Ngutu-pare	Wrybill	Nationally Increasing	Obligate	Petone foreshore	Schedule F2c: Habitats for indigenous birds in the coastal marine area (Wellington Harbour (Port Nicholson) foreshore)		1754073	5422368	Birds NZ data	As for Lake Wairarapa	Birds Online	Y	Not sure	N	Y	na	na	na
Bird	<i>Anarhynchus frontalis</i>	Ngutu-pare	Wrybill	Nationally Increasing	Obligate	Waikanae Estuary	Schedule F2c: Habitats for indigenous birds in the coastal marine area (Waikanae River Mouth)		1769459	5472778	eBird observations	As for Lake Wairarapa	Birds Online	Y	Not sure	N	Y	na	na	na
Bird	<i>Anarhynchus frontalis</i>	Ngutu-pare	Wrybill	Nationally Increasing	Obligate	Otaki Estuary	Schedule F2c: Habitats for indigenous birds in the coastal marine area (Otaki River Mouth)		1777495	5485912	eBird observations	As for Lake Wairarapa	Birds Online	Y	Not sure	N	Y	na	na	na
Bird	<i>Anarhynchus frontalis</i>	Ngutu-pare	Wrybill	Nationally Increasing	Obligate	Waiho Stream Mouth	Schedule F2c: Habitats for indigenous birds in the coastal marine area (Waiho Stream Mouth)		1779100	5489385	eBird observations	As for Lake Wairarapa	Birds Online	Y	Not sure	N	Y	na	na	na
Bird	<i>Anarhynchus frontalis</i>	Ngutu-pare	Wrybill	Nationally Increasing	Obligate	Riversdale Beach	Schedule F2c: Habitats for indigenous birds in the coastal marine area (Riversdale Beach & Motuwaireka Stream mouth)		1858793	5447413	eBird observations	As for Lake Wairarapa	Birds Online	Y	Not sure	N	Y	na	na	na
Bird	<i>Anas chlorotis</i>	Pāteke	Brown teal	Nationally Increasing	Obligate	Zealandia	na	Wetlands Scientific 2021 (Karori Dam, Karori Reservoir)	1746493	5427069	eBird observations	Only thought to be breeding at sanctuary sites, such as Zealandia and Pukaha. Breed in bases of rushes, grass or fern clumps. Territories contain abundant food, escape cover as well as suitable nesting and brood-rearing habitat. Eat seeds of sedges, clover leaves, caddisfly larvae, beetles, caterpillars, moths and earthworms. In inter-tidal areas, gastropods, bivalves, crustacean and polychaete worms	Birds Online	Y	Not sure	Y	Y	na	na	na
Bird	<i>Anas chlorotis</i>	Pāteke	Brown teal	Nationally Increasing	Obligate	Waikanae Estuary	Schedule F2c: Habitats for indigenous birds in the coastal marine area (Waikanae River Mouth)		1769459	5472778	eBird observations	As for Zealandia	Birds Online	Y	Not sure	Y	Y	na	na	na
Bird	<i>Poliocephalus rufopectus</i>	Wewela	NZ dabchick	Nationally Increasing	Obligate	Wairarapa Moana	Schedule A3: Wetlands with outstanding indigenous biodiversity values (Eastern Lake Wairarapa), Schedule F2b: Significant habitats for indigenous birds in lakes (Lake Wairarapa), Schedule F2c: Significant habitats for indigenous birds in the coastal marine area (Lake Onoke), Schedule F3: Identified natural wetlands (Boggy Pond/Matthews Lagoon, JK Donald/Tairoa Wetlands, Lake Domain Reserve, Pounui Lagoon)		1790011	5431053	GW/DOC lakeshore counts, eBird observations	Breeding birds favour shallow waters with dense vegetation on small freshwater lakes and pools, sand-dune lakes and lagoons. Pairs nest on the water, anchoring the nest to aquatic vegetation. Mainly eat aquatic invertebrates such as insects and their larvae. Do use small farm dams. Non-breeding birds flock on more open freshwater bodies.	Birds Online	Y	Not sure	Y	Y	na	na	na
Bird	<i>Poliocephalus rufopectus</i>	Wewela	NZ dabchick	Nationally Increasing	Obligate	Lake Pounui	Schedule A3: Wetlands with outstanding indigenous biodiversity values (Lake Pounui Wetlands)		1776732	5420875	eBird observations	As for Wairarapa Moana	Birds Online	Y	Not sure	Y	Y	na	na	na
Bird	<i>Poliocephalus rufopectus</i>	Wewela	NZ dabchick	Nationally Increasing	Obligate	Queen Elizabeth Park - Kapiti	Schedule F3: Identified natural wetlands (Queen Elizabeth Park Bush and Wetlands)		1788226	5462927	eBird observations	As for Wairarapa Moana	Birds Online	Y	Not sure	Y	Y	na	na	na
Bird	<i>Poliocephalus rufopectus</i>	Wewela	NZ dabchick	Nationally Increasing	Obligate	Parangarahu Lakes	Schedule F2b: Significant habitats for indigenous birds in lakes (Parangarahu Lakes and wetlands)		1756055	5419017	eBird observations	As for Wairarapa Moana	Birds Online	Y	Not sure	Y	Y	na	na	na
Bird	<i>Poliocephalus rufopectus</i>	Wewela	NZ dabchick	Nationally Increasing	Obligate	Waikanae Estuary	Schedule F2c: Habitats for indigenous birds in the coastal marine area (Waikanae River Mouth)		1769459	5472778	eBird observations	As for Wairarapa Moana	Birds Online	Y	Not sure	Y	Y	na	na	na
Bird	<i>Poliocephalus rufopectus</i>	Wewela	NZ dabchick	Nationally Increasing	Obligate	Te Harakeke Swamp	Schedule A3: Wetlands with outstanding indigenous biodiversity values (Te Harakeke Swamp)		1772387	5476239	eBird observations	As for Wairarapa Moana	Birds Online	Y	Not sure	Y	Y	na	na	na
Bird	<i>Poliocephalus rufopectus</i>	Wewela	NZ dabchick	Nationally Increasing	Obligate	Te Hapua Wetland A	Schedule A3: Wetlands with outstanding indigenous biodiversity values (Te Hapua Wetland A)		1774926	5479544	KCDC Ecological sites	As for Wairarapa Moana	Birds Online	Y	Not sure	Y	Y	na	na	na
Bird	<i>Poliocephalus rufopectus</i>	Wewela	NZ dabchick	Nationally Increasing	Obligate	Lake Kaitawa & Keelings Bush	Schedule F3: Identified natural wetlands (Lake Kaitawa & Keelings Bush)		1783367	5489531	KCDC Ecological sites	As for Wairarapa Moana	Birds Online	Y	Not sure	Y	Y	na	na	na
Bird	<i>Poliocephalus rufopectus</i>	Wewela	NZ dabchick	Nationally Increasing	Obligate	Otepuā-Parūuku	Schedule F3: Identified natural wetlands (Otepuā-Parūuku)		1783621	5488045	KCDC Ecological sites	As for Wairarapa Moana	Birds Online	Y	Not sure	Y	Y	na	na	na
Bird	<i>Poliocephalus rufopectus</i>	Wewela	NZ dabchick	Nationally Increasing	Obligate	Waimanguru Lagoon (Forest Lake)	Schedule F3: Identified natural wetlands (Waimanguru Lagoon (Forest Lake))		1782813	5488818	KCDC Ecological sites	As for Wairarapa Moana	Birds Online	Y	Not sure	Y	Y	na	na	na

Species type	Species Name	Maori Name	Common Name	Threat Ranking	Freshwater Rating	Waterbody/Site	Schedule F1 name location	Other locations	Easting	Northing	Observation source	Critical requirements	Critical requirements reference	Water level	Water quality	Pests	Habitat disturbance	Connectivity	Riparian habitat at Grazing spawning site	
Bird	<i>Poliocephalus rufopectus</i>	Wewela	NZ dabchick	Nationally increasing	Obligate	Waimeha Lagoon, Waikanae	Schedule F1: Identified natural wetlands (Waimeha Lagoon, Waikanae)		1770150	5474052	KCCO Ecological sites	As for Wairarapa Moana	Birds Online	Y	Not sure	Y	Y	na	na	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Oterei River tributary (MAINRIV ID 3222)	F1: Threatened or At Risk Fish Habitat (Oterei River and all tributaries)		1816173	5409275	Department of Conservation Wellington	Short-jaw kokopu live in small bouldery streams in dense forest, go to sea during the larval stage and return about 19 weeks later as whitebait. (McDowall, 2000). Migration barriers and deforestation biggest impacts. Need good riparian vegetation, pool habitat with boulder and cobble fish cover, fish passage to the sea and flow regime that provides autumn freshes for spawning. Presence of exotic fish impact shortjaw populations (Goodwin, 2003)	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Oterei River tributary (MAINRIV ID 3222)	F1: Threatened or At Risk Fish Habitat (Oterei River and all tributaries)		1816673	5409074	Department of Conservation Wellington	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Opuowae River (Poley Stream)	F1: Threatened or At Risk Fish Habitat (Opuowae River and all tributaries)		1796271	5403580	Massey University	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Whawanui River tributary (MAINRIV ID 3299)	F1: Threatened or At Risk Fish Habitat (Whawanui River and all tributaries)		1795270	5399880	Massey University	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Whawanui River	F1: Threatened or At Risk Fish Habitat (Whawanui River and all tributaries)		1795370	5400480	Massey University	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Waitetuna Stream	F1: Threatened or At Risk Fish Habitat (Waitetuna Stream and all tributaries)		1793768	5391781	Department of Conservation Wellington	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Otakaha Stream tributary (MAINRIV ID 3291)	F1: Threatened or At Risk Fish Habitat (Otakaha Stream and all tributaries)		1791370	5399481	Massey University	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Otakaha Stream	F1: Threatened or At Risk Fish Habitat (Otakaha Stream and all tributaries)		1791770	5400081	Massey University	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Otakaha Stream tributary (MAINRIV ID 3301)	F1: Threatened or At Risk Fish Habitat (Otakaha Stream and all tributaries)		1791770	5398681	Massey University	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Pararaki Stream	F1: Threatened or At Risk Fish Habitat (Pararaki Stream and all tributaries)		1791371	5402781	Department of Conservation Wellington	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Pararaki Stream	F1: Threatened or At Risk Fish Habitat (Pararaki Stream and all tributaries)		1792071	5402981	Department of Conservation Wellington	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Pararaki Stream	F1: Threatened or At Risk Fish Habitat (Pararaki Stream and all tributaries)		1794271	5404780	Department of Conservation Wellington	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Makotukutuku Stream (Washpool Creek)	F1: Threatened or At Risk Fish Habitat (Makotukutuku Stream and all tributaries)		1790971	5405281	Department of Conservation Nelson Marlborough	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Makotukutuku Stream (Washpool Creek)	F1: Threatened or At Risk Fish Habitat (Makotukutuku Stream and all tributaries)		1791438	5405662	Water Ways Consulting Ltd	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Makotukutuku Stream (Washpool Creek)	F1: Threatened or At Risk Fish Habitat (Makotukutuku Stream and all tributaries)		1791471	5405581	Department of Conservation Wellington	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Makotukutuku Stream (Washpool Creek)	F1: Threatened or At Risk Fish Habitat (Makotukutuku Stream and all tributaries)		1792072	5406381	Department of Conservation Wellington	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Makotukutuku Stream (Washpool Creek)	F1: Threatened or At Risk Fish Habitat (Makotukutuku Stream and all tributaries)		1792372	5406581	Department of Conservation Wellington	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Battery Stream tributary (MAINRIV ID 2911 and 3027)	F1: Threatened or At Risk Fish Habitat (Battery Stream and all tributaries)		1777475	5421484	NWA	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Mukamukaiti Stream	F1: Threatened or At Risk Fish Habitat (Mukamukaiti Stream and all tributaries)		1765775	5415686	Massey University	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Mukamukaiti Stream	F1: Threatened or At Risk Fish Habitat (Mukamukaiti Stream and all tributaries)		1766075	5415286	NWA	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Catchpool Stream	F1: Threatened or At Risk Fish Habitat (Wainuiomata River and all tributaries excluding Black Creek)		1759576	5420387	Otago University	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Wainuiomata River	F1: Threatened or At Risk Fish Habitat (Wainuiomata River and all tributaries excluding Black Creek)*		1759731	5422970	Strickland and Quateman 2001	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Day's Bay	F1: Threatened or At Risk Fish Habitat (Days Bay Stream and all tributaries)		1759777	5428486	Unknown Institution	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Kaiwharawhara Stream	F1: Threatened or At Risk Fish Habitat (Kaiwharawhara Stream and all catchments)		1748489	5431048	Wellington Regional Council	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Owhiro Stream	F1: Threatened or At Risk Fish Habitat (Owhiro Stream and all tributaries)		1747078	5423088	Private individuals	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Owhiro Stream	F1: Threatened or At Risk Fish Habitat (Owhiro Stream and all tributaries)		1745678	5423289	NWA	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Duck Creek (MAINRIV ID 1921 and 1781)	F1: Threatened or At Risk Fish Habitat (Duck Creek and all tributaries)		1759300	5444409	Cardno Ltd	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Ration Creek (MAINRIV ID 1660, 1666, 1680 and 1686)	F1: Threatened or At Risk Fish Habitat (Little Waitangi Stream and all tributaries)		1762389	5449636	Cardno Ltd	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkopu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Horokiri Stream	F1: Threatened or At Risk Fish Habitat (Horokiri Stream and all tributaries)		1763454	5452290	Cardno Ltd	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na



Species type	Species Name	Maori Name	Common Name	Threat Ranking	Freshwater Rating	Waterbody/Site	Schedule F1 name location	Other locations	Easting	Northing	Observation source	Critical requirements	Critical requirements reference	Water level	Water quality	Pests	Habitat disturbance	Connectivity	Riparian habitat at Grazing spawning site	
Fish	<i>Galaxias postvectis</i>	Kōkōpu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Horokiri Stream	F1: Threatened or At Risk Fish Habitat (Horokiri Stream and all tributaries)		1764080	5454485	Fish and Game Wellington	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkōpu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Horokiri Stream	F1: Threatened or At Risk Fish Habitat (Horokiri Stream and all tributaries)		1764172	5455192	Boffa Miskell Ltd	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkōpu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Horokiri Stream	F1: Threatened or At Risk Fish Habitat (Horokiri Stream and all tributaries)		1764316	5456134	Boffa Miskell Ltd	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkōpu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Wainui Stream	F1: Threatened or At Risk Fish Habitat (Wainui Stream and all tributaries)*		1765041	5462277	Wellington Regional Council	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkōpu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Wainui Stream	F1: Threatened or At Risk Fish Habitat (Wainui Stream and all tributaries)*		1765056	5462186	Wildlands	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkōpu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Wainui Stream (MAINRIV ID 1167, 1074 and 1031) - Te Puna Stream	F1: Threatened or At Risk Fish Habitat (Wainui Stream and all tributaries)*		1765132	5458968	Boffa Miskell Ltd	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkōpu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Wainui Stream (MAINRIV ID 1167, 1074 and 1031) - Te Puna Stream	F1: Threatened or At Risk Fish Habitat (Wainui Stream and all tributaries)*		1765224	5459349	Boffa Miskell Ltd	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkōpu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Wharemauku Stream	F1: Threatened or At Risk Fish Habitat (Wharemauku Stream and all tributaries)		1769081	5467885	Department of Conservation Wellington	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkōpu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Maungakotukutuku Stream and Waikanae River	F1: Threatened or At Risk Fish Habitat (Waikanae River and all tributaries)		1770181	5463185	NiWA (Old)	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkōpu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Waikanae River	F1: Threatened or At Risk Fish Habitat (Waikanae River and all tributaries)		1773682	5472385	NiWA (Old)	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkōpu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Waikanae River and MAINRIV ID 726	F1: Threatened or At Risk Fish Habitat (Waikanae River and all tributaries)		1779582	5471885	NiWA	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkōpu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Waikanae River and MAINRIV ID 597	F1: Threatened or At Risk Fish Habitat (Waikanae River and all tributaries)		1779782	5472585	NiWA	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkōpu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Waikanae River and MAINRIV ID 597	F1: Threatened or At Risk Fish Habitat (Waikanae River and all tributaries)		1779982	5472485	NiWA	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkōpu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Waikanae River	F1: Threatened or At Risk Fish Habitat (Waikanae River and all tributaries)		1780082	5473785	Massey University	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkōpu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Mangaoone Stream	F1: Threatened or At Risk Fish Habitat (Mangaoone Stream and all tributaries)		1782983	5476885	Unknown Institution	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkōpu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Otaki River and Pukeatua Stream	F1: Threatened or At Risk Fish Habitat (Otaki River and all tributaries)		1786383	5473985	Fish and Game Wellington	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkōpu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Otaki River and Pukehinu Stream	F1: Threatened or At Risk Fish Habitat (Otaki River and all tributaries)		1786683	5476685	Fish and Game Wellington	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkōpu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Waiohau River and Otaki River	F1: Threatened or At Risk Fish Habitat (Otaki River and all tributaries)		1787783	5472884	Unknown Institution (Old)	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkōpu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Waiohau Stream and MAINRIV ID 187, 179	F1: Threatened or At Risk Fish Habitat (Waiohau Stream and all tributaries)		1788483	5482785	Massey University	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkōpu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Hutt River headwaters	F1: Threatened or At Risk Fish Habitat (Te Awa Kairangi/Hutt River)*		1786202	5455037	Fish and Game Wellington	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Galaxias postvectis</i>	Kōkōpu	Shortjaw kokopu	Nationally Vulnerable	Obligate	Orongorongo River	F1: Threatened or At Risk Fish Habitat (Orongorongo River and all tributaries)*		1772437	5432505	Fish and Game Wellington	As for Oterei River and all tributaries	NWA website, Allibone and Gray 2018	Y	Y	na	na	Y	y	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Waipoua River	F1: Threatened or At Risk Fish Habitat (Waipoua River and all tributaries)		1824966	5462948	Perrle	Migratory fish, spend most of their lives at sea and only move into freshwater to spawn and for their juvenile life stage. Lamprey lifecycle takes about 9 years to complete. Threats are migration barriers, loss of habitat, poor water quality and some activities in streams like clearing drains. Predation from some introduced freshwater fish.	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Castlepoint Stream	F1: Threatened or At Risk Fish Habitat (Castlepoint Stream and all tributaries)		1871900	5467471	Wellington Regional Council	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Whareama River	F1: Threatened or At Risk Fish Habitat (Whareama River and all tributaries)		1857693	5457471	Wellington Regional Council	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Whareama River	F1: Threatened or At Risk Fish Habitat (Whareama River and all tributaries)		1857693	5457471	Department of Conservation Wellington	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Ruamahanga River	F1: Threatened or At Risk Fish Habitat (Ruamahanga River and all tributaries above but not including Kopuaranga River)		1788976	5425882	Department of Conservation Wellington	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Lake Wairarapa	F1: Threatened or At Risk Fish Habitat (Lake Wairarapa)		1791378	5438682	Unknown Institution (Old)	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Burlings Stream	F1: Threatened or At Risk Fish Habitat (Burlings Stream and all tributaries)		1781777	5432283	Unknown Institution (Old)	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Smiths Creek	F1: Threatened or At Risk Fish Habitat (Tauherenikau River and all tributaries)		1791481	5452682	Unknown Institution (Old)	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Devil Creek	F1: Threatened or At Risk Fish Habitat (Waiohine River up to and including the Mangaterere Stream)		1801982	5457281	Department of Conservation Wellington	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Waiohine River	F1: Threatened or At Risk Fish Habitat (Waiohine River up to and including the Mangaterere Stream)		1801782	5456181	Unknown Institution	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na

Species type	Species Name	Maori Name	Common Name	Threat Ranking	Freshwater Rating	Waterbody/Site	Schedule F1 name location	Other locations	Easting	Northing	Observation source	Critical requirements	Critical requirements reference	Water level	Water quality	Pests	Habitat disturbance	Connectivity	Riparian habitat at spawning site	Grazing site
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Mangaterere Stream	F1: Threatened or At Risk Fish Habitat (Waihoine River up to and including the Mangaterere Stream)		1809983	5454980	Department of Conservation Wellington	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Mangaterere Stream	F1: Threatened or At Risk Fish Habitat (Waihoine River up to and including the Mangaterere River)		1811120	5456863	NIWA	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Mikimiki Stream (MAINRIV ID 484)	F1: Threatened or At Risk Fish Habitat (Waipoua River and all tributaries)		1819787	5475482	Unknown Institution (Old)	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Kiriwhakapapa Stream (MAINRIV ID 370)	F1: Threatened or At Risk Fish Habitat (Waipoua River and all tributaries)		1818487	5478883	NIWA (Old)	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Ruamahanga River	F1: Threatened or At Risk Fish Habitat (Ruamahanga River and all tributaries above but not including Kopuaranga River)*		1819744	5485351	eDNA database - Wilderlab	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Wainuiomata River	F1: Threatened or At Risk Fish Habitat (Wainuiomata River and all tributaries excluding Black Creek)		1757375	5415688	Fish and Game Wellington	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Wainuiomata River	F1: Threatened or At Risk Fish Habitat (Wainuiomata River and all tributaries excluding Black Creek)		1766177	5429285	Massey University	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Wainuiomata River	F1: Threatened or At Risk Fish Habitat (Wainuiomata River and all tributaries excluding Black Creek)		1756975	5413988	Unknown Institution (Old)	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Catchpool Stream	F1: Threatened or At Risk Fish Habitat (Wainuiomata River and all tributaries excluding Black Creek)		1761376	5420787	NIWA (Old)	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Catchpool Stream	F1: Threatened or At Risk Fish Habitat (Wainuiomata River and all tributaries excluding Black Creek)		1761076	5420587	Massey University	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Catchpool Stream	F1: Threatened or At Risk Fish Habitat (Wainuiomata River and all tributaries excluding Black Creek)		1760976	5420587	Fish and Game Wellington	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Catchpool Stream	F1: Threatened or At Risk Fish Habitat (Wainuiomata River and all tributaries excluding Black Creek)		1760076	5420087	Department of Conservation Wellington	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Catchpool Stream	F1: Threatened or At Risk Fish Habitat (Wainuiomata River and all tributaries excluding Black Creek)		1759776	5420187	NIWA	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Butterfly Creek	F1: Threatened or At Risk Fish Habitat (Lake Kohangatera, Gollans Stream and all tributaries)		1758877	5424967	NIWA	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Hutt River	F1: Threatened or At Risk Fish Habitat (Akatarawa River and all tributaries)		1770479	5445285	NIWA	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Hutt River	F1: Threatened or At Risk Fish Habitat (Speedy's Stream and all tributaries)		1761779	5437986	Department of Conservation Northland	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Kaiwharawhara	F1: Threatened or At Risk Fish Habitat (Kaiwharawhara Stream and all catchments)*		1749825	5430845	Perrie	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Hutt River	F1: Threatened or At Risk Fish Habitat (Te Awa Kairangi/Hutt River)		1764479	5440685	Unknown Institution	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Hutt River	F1: Threatened or At Risk Fish Habitat (Te Awa Kairangi/Hutt River)*		1759219	5434469	eDNA database - Wilderlab	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Karori Stream	F1: Threatened or At Risk Fish Habitat (Karori Stream and all tributaries)		1742978	5425889	NIWA	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Makara Stream	F1: Threatened or At Risk Fish Habitat (Makara Stream and all tributaries)		1743579	5431288	NIWA	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Makara Stream	F1: Threatened or At Risk Fish Habitat (Makara Stream and all tributaries)		1743579	5431288	NIWA	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Little Waitangi Stream (MAINRIV ID 1686)	F1: Threatened or At Risk Fish Habitat (Little Waitangi Stream and all tributaries)		1761180	5448786	NIWA (Old)	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Duck Creek (MAINRIV ID 1781)	F1: Threatened or At Risk Fish Habitat (Duck Creek and all tributaries)		1759480	5447286	Department of Conservation Wellington	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Upper Duck Creek (MAINRIV ID 1921)	F1: Threatened or At Risk Fish Habitat (Duck Creek and all tributaries)		1759271	5445541	Boffa Miskell Ltd	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Upper Duck Creek (MAINRIV ID 1921)	F1: Threatened or At Risk Fish Habitat (Duck Creek and all tributaries)		1759262	5445477	Boffa Miskell Ltd	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Upper Duck Creek (MAINRIV ID 1921)	F1: Threatened or At Risk Fish Habitat (Duck Creek and all tributaries)		1759182	5446074	Boffa Miskell Ltd	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Pautahanui Stream	F1: Threatened or At Risk Fish Habitat (Pautahanui Stream and all tributaries)		1761180	5446786	NIWA	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Pautahanui Stream tributary (MAINRIV ID 1867)	F1: Threatened or At Risk Fish Habitat (Pautahanui Stream and all tributaries)		1761280	5445886	NIWA	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Pautahanui Stream	F1: Threatened or At Risk Fish Habitat (Pautahanui Stream and all tributaries)		1760937	5446898	Boffa Miskell Ltd	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Pautahanui Stream	F1: Threatened or At Risk Fish Habitat (Pautahanui Stream and all tributaries)		1760916	5446949	Boffa Miskell Ltd	As for Waipoua River and all tributaries	Niwa website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na

Species type	Species Name	Maori Name	Common Name	Threat Ranking	Freshwater Rating	Waterbody/Site	Schedule F1 name location	Other locations	Easting	Northing	Observation source	Critical requirements	Critical requirements reference	Water level	Water quality	Pests	Habitat disturbance	Connectivity	Riparian habitat at spawning site	Grazing site
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Horokiri Stream	F1: Threatened or At Risk Fish Habitat (Horokiri Stream and all tributaries)		1760180	5448986	Unknown Institution (Old)	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Horokiri Stream	F1: Threatened or At Risk Fish Habitat (Horokiri Stream and all tributaries)		1761280	5450186	Fish and Game Wellington	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Horokiri Stream	F1: Threatened or At Risk Fish Habitat (Horokiri Stream and all tributaries)		1762280	5451085	Fish and Game Wellington	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Horokiri Stream tributary (MANRIV ID 1463)	F1: Threatened or At Risk Fish Habitat (Horokiri Stream and all tributaries)		1762480	5453585	Fish and Game Wellington	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Horokiri Stream tributary (MANRIV ID 3332)	F1: Threatened or At Risk Fish Habitat (Horokiri Stream and all tributaries)		1762881	5456085	Fish and Game Wellington	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Horokiri Stream	F1: Threatened or At Risk Fish Habitat (Horokiri Stream and all tributaries)		1763680	5452885	Fish and Game Wellington	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Whareroa Stream	F1: Threatened or At Risk Fish Habitat (Whareroa Stream and all tributaries)		1767481	5464185	NIWA (Old)	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Waikanae River	F1: Threatened or At Risk Fish Habitat (Waikanae River and all tributaries)		1774482	5471585	Fish and Game Wellington	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Waikanae River	F1: Threatened or At Risk Fish Habitat (Waikanae River and all tributaries)		1773682	5472285	Fish and Game Wellington	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Waikanae River	F1: Threatened or At Risk Fish Habitat (Waikanae River and all tributaries)		1780082	5473785	Massey University	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Waikanae River - estuary	F1: Threatened or At Risk Fish Habitat (Waikanae River and all tributaries)		1768982	5473285	NIWA (Old)	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Waikanae River	F1: Threatened or At Risk Fish Habitat (Waikanae River and all tributaries)		1773482	5472085	NIWA (Old)	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Waikanae River	F1: Threatened or At Risk Fish Habitat (Waikanae River and all tributaries)		1773682	5472385	NIWA (Old)	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Waikanae River	F1: Threatened or At Risk Fish Habitat (Waikanae River and all tributaries)		1773182	5472085	NIWA (Old)	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Waikanae River	F1: Threatened or At Risk Fish Habitat (Waikanae River)*		1770157	5472958	dDNA database - Wilderlab	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Mangaone Stream	F1: Threatened or At Risk Fish Habitat (Mangaone Stream and all tributaries)		1779590	5481061	Tonkin and Taylor	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Mangaone Stream	F1: Threatened or At Risk Fish Habitat (Mangaone Stream and all tributaries)		1779536	5481078	Tonkin and Taylor	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Mangaone Stream	F1: Threatened or At Risk Fish Habitat (Mangaone Stream and all tributaries)		1779382	5481115	Tonkin and Taylor	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Mangaone Stream	F1: Threatened or At Risk Fish Habitat (Mangaone Stream and all tributaries)		1778955	5481476	Tonkin and Taylor	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Mangaone Stream	F1: Threatened or At Risk Fish Habitat (Mangaone Stream and all tributaries)		1779511	5481050	Tonkin and Taylor	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Waitohu Stream (MANRIV ID 50)	F1: Threatened or At Risk Fish Habitat (Waitohu Stream and all tributaries)		1780775	5487200	Royal (old obs)	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Waitohu Stream	F1: Threatened or At Risk Fish Habitat (Waitohu Stream and all tributaries)		1782883	5486386	Department of Conservation Wellington	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Waitohu Stream	F1: Threatened or At Risk Fish Habitat (Waitohu Stream and all tributaries)		1781273	5488166	Wellington Regional Council	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Fish	<i>Geotria australis</i>	Piharau	Lamprey	Nationally Vulnerable	Obligate	Waitohu Stream	F1: Threatened or At Risk Fish Habitat (Waitohu Stream and all tributaries)		1779183	5488886	NIWA (Old)	As for Waipoua River and all tributaries	NWA website, Allibone and Gray 2018	Y	Not sure	Y	na	Y	na	na
Invertebrate	<i>Hydrochorema sp. W</i>		Caddisfly	Nationally Endangered	Obligate	Stokes Valley stream tributary	F1: Rivers and lakes with significant indigenous ecosystems (Stokes Valley Stream and all tributaries)		1766278	5437885	NZ Trichoptera database, Jeffrey 2016 - 1 individual 29/1/1999	Hydrochrema sp are found in stony stream and rivers on bush covered and farmland areas - they eat other stream invertebrates and are highly sensitive to water quality	NWA website	Y	Y	N	Y	na	na	na
Invertebrate	<i>Hydrochorema sp. W</i>		Caddisfly	Nationally Endangered	Obligate	Stokes Valley stream tributary	F1: Rivers and lakes with significant indigenous ecosystems (Stokes Valley Stream and all tributaries)		1766278	5437885	NZ Trichoptera database, Jeffrey 2016 - 2 individuals 29/1/1999	Hydrochrema sp are found in stony stream and rivers on bush covered and farmland areas - they eat other stream invertebrates and are highly sensitive to water quality	NWA website	Y	Y	N	Y	na	na	na
Invertebrate	<i>Hydrochorema sp. W</i>		Caddisfly	Nationally Endangered	Obligate	Catchpool Stream tributary, near the ford	F1: Rivers and lakes with significant indigenous ecosystems (Wainuiomata River and all tributaries excluding Black Creek)		1761076	5420586	NZ Trichoptera database, Jeffrey 2016 - 2 individuals 16/12/2022	As for Stokes Valley	NWA website	Y	Y	N	Y	na	na	na
Invertebrate	<i>Hydrochorema sp. W</i>		Caddisfly	Nationally Endangered	Obligate	Windy Point, Turakirae, Mukamukaiti Stream outlet	F1: Rivers and lakes with significant indigenous ecosystems (Mukamukaiti Stream and all tributaries)		1765974	5415286	NZ Trichoptera database, Jeffrey 2016 - 1 individual 31/12/2003	As for Stokes Valley	NWA website	Y	Y	N	Y	na	na	na
Invertebrate	<i>Xenobiasella motueka</i>		Caddisfly	Nationally Vulnerable	Obligate	Waitoauru River tributary, Tararua Ranges	F1: Rivers and lakes with significant indigenous ecosystems (Otaki River and all tributaries)		1785982	5470084	NZ Trichoptera database, Jeffrey 2016 - 1 individual 29/11/1997	Type locality is a swiftly flowing river in Tasman Bay (Motueka River). Given that this species is found in the Tararua, it is probably that high water quality is a critical requirement.	Henderson 1983	Y	Y	N	Y	na	na	na
Invertebrate	<i>Cryptobasella spinosa</i>		Caddisfly	Nationally Endangered	Obligate	Waitoauru Valley (River), Tararua Ranges	F1: Rivers and lakes with significant indigenous ecosystems (Otaki River and all tributaries)		1786882	5471984	NZ Trichoptera database, Jeffrey 2016 - 1 individual 20/01/1999	Larvae known only from small, forest streams. Occurs in beech forest and has been collected between altitudes 150-700m. Assume high water quality required	McGuinness 2001	Y	Y	N	Y	na	na	na

Species type	Species Name	Maori Name	Common Name	Threat Ranking	Freshwater Rating	Waterbody/Site	Schedule F1 name location	Other locations	Easting	Northing	Observation source	Critical requirements	Critical requirements reference	Water level	Water quality	Pests	Habitat disturbance	Connectivity	Riparian habitat at	Grazing spawning site
Invertebrate	<i>Cryptobiosella spinosa</i>		Caddisfly	Nationally Endangered	Obligate	Waioatauru Valley (River), Tararua Ranges	F1: Rivers and lakes with significant indigenous ecosystems (Otaki River and all tributaries)		1786882	5471984	NZ Trichoptera database, Jeffrey 2016 -3 individuals 15/12/1998	Larvae known only from small, forest streams. Occurs in beech forest and has been collected between altitudes 150-700m. Assume high water quality required	McGuinness 2001	Y	Y	N	Y	na	na	na
Invertebrate	<i>Cryptobiosella spinosa</i>		Caddisfly	Nationally Endangered	Obligate	Waioatauru Valley (River), Tararua Ranges	F1: Rivers and lakes with significant indigenous ecosystems (Otaki River and all tributaries)		1786882	5471984	NZ Trichoptera database, Jeffrey 2016 -2 individuals 14/02/1998	Larvae known only from small, forest streams. Occurs in beech forest and has been collected between altitudes 150-700m. Assume high water quality required	McGuinness 2001	Y	Y	N	Y	na	na	na
Invertebrate	<i>Cryptobiosella spinosa</i>		Caddisfly	Nationally Endangered	Obligate	Waioatauru Valley (River), Tararua Ranges	F1: Rivers and lakes with significant indigenous ecosystems (Otaki River and all tributaries)		1786882	5471984	NZ Trichoptera database, Jeffrey 2016 -1 individual 2/02/1998	Larvae known only from small, forest streams. Occurs in beech forest and has been collected between altitudes 150-700m. Assume high water quality required	McGuinness 2001	Y	Y	N	Y	na	na	na
Invertebrate	<i>Cryptobiosella spinosa</i>		Caddisfly	Nationally Endangered	Obligate	Waioatauru Valley (River), Tararua Ranges	F1: Rivers and lakes with significant indigenous ecosystems (Otaki River and all tributaries)		1786882	5471984	NZ Trichoptera database, Jeffrey 2016 -1 individual 2/02/1998	Larvae known only from small, forest streams. Occurs in beech forest and has been collected between altitudes 150-700m. Assume high water quality required	McGuinness 2001	Y	Y	N	Y	na	na	na
Invertebrate	<i>Cryptobiosella spinosa</i>		Caddisfly	Nationally Endangered	Obligate	Waioatauru Valley (River), Tararua Ranges	F1: Rivers and lakes with significant indigenous ecosystems (Otaki River and all tributaries)		1786882	5471984	NZ Trichoptera database, Jeffrey 2016 -3 individuals 15/12/1998	Larvae known only from small, forest streams. Occurs in beech forest and has been collected between altitudes 150-700m. Assume high water quality required	McGuinness 2001	Y	Y	N	Y	na	na	na
Invertebrate	<i>Cryptobiosella spinosa</i>		Caddisfly	Nationally Endangered	Obligate	Waioatauru River tributary, Tararua Ranges	F1: Rivers and lakes with significant indigenous ecosystems (Otaki River and all tributaries)		1785982	5470084	NZ Trichoptera database, Jeffrey 2016 -1 individual 20/01/1999	Larvae known only from small, forest streams. Occurs in beech forest and has been collected between altitudes 150-700m. Assume high water quality required	McGuinness 2001	Y	Y	N	Y	na	na	na
Invertebrate	<i>Cryptobiosella spinosa</i>		Caddisfly	Nationally Endangered	Obligate	Waioatauru River tributary, Tararua Ranges	F1: Rivers and lakes with significant indigenous ecosystems (Otaki River and all tributaries)		1785982	5470084	NZ Trichoptera database, Jeffrey 2016 -1 individual 28/12/1998	Larvae known only from small, forest streams. Occurs in beech forest and has been collected between altitudes 150-700m. Assume high water quality required	McGuinness 2001	Y	Y	N	Y	na	na	na
Invertebrate	<i>Cryptobiosella spinosa</i>		Caddisfly	Nationally Endangered	Obligate	Waioatauru River tributary, Tararua Ranges	F1: Rivers and lakes with significant indigenous ecosystems (Otaki River and all tributaries)		1785982	5470084	NZ Trichoptera database, Jeffrey 2016 -1 individual 13/12/1997	Larvae known only from small, forest streams. Occurs in beech forest and has been collected between altitudes 150-700m. Assume high water quality required	McGuinness 2001	Y	Y	N	Y	na	na	na
Invertebrate	<i>Cryptobiosella spinosa</i>		Caddisfly	Nationally Endangered	Obligate	Waioatauru River tributary, Tararua Ranges	F1: Rivers and lakes with significant indigenous ecosystems (Otaki River and all tributaries)		1785982	5470084	NZ Trichoptera database, Jeffrey 2016 -1 individual 29/11/1997	Larvae known only from small, forest streams. Occurs in beech forest and has been collected between altitudes 150-700m. Assume high water quality required	McGuinness 2001	Y	Y	N	Y	na	na	na
Invertebrate	<i>Cryptobiosella spinosa</i>		Caddisfly	Nationally Endangered	Obligate	Waioatauru River tributary, Tararua Ranges	F1: Rivers and lakes with significant indigenous ecosystems (Otaki River and all tributaries)		1785982	5470084	NZ Trichoptera database, Jeffrey 2016 -1 individual 29/11/1997	Larvae known only from small, forest streams. Occurs in beech forest and has been collected between altitudes 150-700m. Assume high water quality required	McGuinness 2001	Y	Y	N	Y	na	na	na
Invertebrate	<i>Cryptobiosella spinosa</i>		Caddisfly	Nationally Endangered	Obligate	South Whakanui Track, Rimutakas, Tributary of Turere Stream	F1: Rivers and lakes with significant indigenous ecosystems (Orongorongo River and all tributaries)		1767176	5426685	NZ Trichoptera database, Jeffrey 2016 -1 individual 16/01/1982	Larvae known only from small, forest streams. Occurs in beech forest and has been collected between altitudes 150-700m. Assume high water quality required	McGuinness 2001	Y	Y	N	Y	na	na	na
Invertebrate	<i>Cryptobiosella furcata</i>		Caddisfly	Nationally Endangered	Obligate	Te Matawai Hut, Tararua Ranges	F1: Rivers and lakes with significant indigenous ecosystems (Otaki River and all tributaries)		1802485	5487585	NZ Trichoptera database, Jeffrey 2016 -3 individuals 17/03/1982	Larvae only known from small, forest streams. Type locality is a very small spring-fed stream in silver beech forest and leatherwood scrub, 920m. All recent records have been from small springfed streams and seepages at lower altitudes than the type locality (340 - 920m)	McGuinness 2001	Y	Y	N	Y	na	na	na
Invertebrate	<i>Cryptobiosella furcata</i>		Caddisfly	Nationally Endangered	Obligate	Te Matawai Hut, Tararua Ranges	F1: Rivers and lakes with significant indigenous ecosystems (Otaki River and all tributaries)		1802485	5487585	NZ Trichoptera database, Jeffrey 2016 -1 individual 17/03/1982	Larvae only known from small, forest streams. Type locality is a very small spring-fed stream in silver beech forest and leatherwood scrub, 920m. All recent records have been from small springfed streams and seepages at lower altitudes than the type locality (340 - 920m)	McGuinness 2001	Y	Y	N	Y	na	na	na
Invertebrate	<i>Cryptobiosella furcata</i>		Caddisfly	Nationally Endangered	Obligate	Te Matawai Hut, Tararua Ranges	F1: Rivers and lakes with significant indigenous ecosystems (Otaki River and all tributaries)		1802485	5487585	NZ Trichoptera database, Jeffrey 2016 -0 individuals 9/02/1982	Larvae only known from small, forest streams. Type locality is a very small spring-fed stream in silver beech forest and leatherwood scrub, 920m. All recent records have been from small springfed streams and seepages at lower altitudes than the type locality (340 - 920m)	McGuinness 2001	Y	Y	N	Y	na	na	na
Invertebrate	<i>Omanuperia hollowayae</i>		Stonefly	Nationally Critical	Obligate	Northern Tararuas, Dundas Basin 1100m, headwaters of Ruamahanga River	F1: Rivers and lakes with significant indigenous ecosystems (Ruamahanga River and all tributaries above but not including Kopuaranga River)		1808156	5489375	Threatened Stonefly database (Stephen Pawson), Jeffrey 2016 -0 individuals 26/11/1984	All specimens found between 940m and 1300m asl - in the subalpine and alpine zones. Tararua Range is type locality	McLellan 1991	Y	Y	N	Y	na	na	na
Invertebrate	<i>Omanuperia hollowayae</i>		Stonefly	Nationally Critical	Obligate	Northern Tararuas, Dundas Basin 1150m, headwaters of Ruamahanga River	F1: Rivers and lakes with significant indigenous ecosystems (Ruamahanga River and all tributaries above but not including Kopuaranga River)		1809286	5489385	Threatened Stonefly database (Stephen Pawson), Jeffrey 2016 -0 individuals 26/11/1984	All specimens found between 940m and 1300m asl - in the subalpine and alpine zones. Tararua Range is type locality	McLellan 1991	Y	Y	N	Y	na	na	na

Species type	Species Name	Maori Name	Common Name	Threat Ranking	Freshwater Rating	Waterbody/Site	Schedule F1 name location	Other locations	Easting	Northing	Observation source	Critical requirements	Critical requirements reference	Water level	Water quality	Pests	Habitat disturbance	Connectivity	Riparian habitat at spawning site	Grazing
Invertebrate	<i>Omanuperla hollowayae</i>		Stonely	Nationally Critical	Obligate	Rimutaka Ranges Mt Matthews, 940m, headwaters of Orongorongo River	F1: Rivers and lakes with significant indigenous ecosystems (Orongorongo River and all tributaries)		1768675	5420585	Threatened Stonely database (Stephen Pawson), Jeffery 2016 - 0 individuals 26/11/1986	All specimens found between 940m and 1300m asl - in the subalpine and alpine zones. Tararua Range is type locality	McLellan 1991	Y	Y	N	Y	na	na	na
Invertebrate	<i>Omanuperla hollowayae</i>		Stonely	Nationally Critical	Obligate	Tararua Ranges, Dundas Hut, headwaters of Ruamahanga River	F1: Rivers and lakes with significant indigenous ecosystems (Ruamahanga River and all tributaries above but not including Kopuaranga River)		1808396	5489805	Threatened Stonely database (Stephen Pawson), Jeffery 2016 - 0 individuals 26/11/1984	All specimens found between 940m and 1300m asl - in the subalpine and alpine zones. Tararua Range is type locality	McLellan 1991	Y	Y	N	Y	na	na	na
Invertebrate	<i>Lepidurus apus viridis</i>		Tadpole shrimp	Nationally Endangered	Obligate	Wairoa wetland, side of Lake Wairarapa	Schedule A3: Wetlands with outstanding indigenous biodiversity values (Eastern Lake Wairarapa)		1788514	5431046	McTwen, 2019, Wairoa fish survey, Perrie, 2020 Sept	Tadpole shrimp appear to be more likely to be found in water bodies that have a high coverage of grasses, aquatic/semi-aquatic and emergent vegetation (>90% cover) compare with more open areas. Usually found in temporary ponds, rather than permanently flowing streams. Eat plant detritus and small aquatic invertebrates	Perrie 2020, NIWA website	Y	Y	N	Y	na	na	na
Invertebrate	<i>Echydella aucklandica</i>	Kākahi	Mussel	Nationally Vulnerable	Obligate	Lake Domain, Lake Wairarapa	Schedule A2: Lakes with outstanding indigenous ecosystem values (Lake Wairarapa)		1793504	5439899	Echydella aucklandica spreadsheet (Bruce Marshall), Jeffery 2016 - 0 individuals 11/12/2004	Young kakahi require clean water and a substrate that's not too silty and won't clog their gills. Larvae called glochidia also need to latch onto other fish gills or fins as part of the life cycle. Host species smelt (Retropinna retropinna). Concern about the lack of juveniles.	NIWA website, Melchior et al. 2023	Y	Y	N	Y	na	na	na
Invertebrate	<i>Echydella aucklandica</i>	Kākahi	Mussel	Nationally Vulnerable	Obligate	Lake Domain, Lake Wairarapa,	Schedule A2: Lakes with outstanding indigenous ecosystem values (Lake Wairarapa)		1793504	5439899	Echydella aucklandica spreadsheet (Bruce Marshall), Jeffery 2016 - 15 individuals 11/12/2004	Young kakahi require clean water and a substrate that's not too silty and won't clog their gills. Larvae called glochidia also need to latch onto other fish gills or fins as part of the life cycle. Concern about the lack of juveniles.	NIWA website, Melchior et al. 2023	Y	Y	N	Y	na	na	na
Invertebrate	<i>Echydella aucklandica</i>	Kākahi	Mussel	Nationally Vulnerable	Obligate	Lake Domain, Lake Wairarapa	Schedule A2: Lakes with outstanding indigenous ecosystem values (Lake Wairarapa)		1793502	5439806	Echydella aucklandica spreadsheet (Bruce Marshall), Jeffery 2016 - 75 individuals 10/02/2007	Young kakahi require clean water and a substrate that's not too silty and won't clog their gills. Larvae called glochidia also need to latch onto other fish gills or fins as part of the life cycle. Concern about the lack of juveniles.	NIWA website, Melchior et al. 2023	Y	Y	N	Y	na	na	na
Invertebrate	<i>Potamopyrgus oppidanus</i>		Freshwater snail	Nationally Critical	Obligate	Gully streams at Te Ahumairangi Hill in Wadestone, Wellington	Schedule F1: Rivers and lakes with significant indigenous ecosystems (Kahwarahara Stream and all tributaries)		1748594	5429605	Tateidias spreadsheet (Bruce Marshall), Jeffery 2016, 30 individuals, 23/10/1975	Only known from the type locality in the stream at Te Ahumairangi Hill in Wellington. Spring-fed gully streams. Sediment runoff, clearing of habitat and loss of habitat are threats	Haase 2008 and DOC news release	Y	Y	N	Y	na	na	na
Marine invertebrate	<i>Boccardiella magnivata</i>		Large-egged polychaete	Nationally Critical	Obligate, but bracks 0.5km upstream of Hutt estuary		Schedule F1: Rivers and lakes with significant indigenous ecosystems (Te Awa Kairangi/Hutt River)		1759311	5434119	Rod Asher (ex-Cawthron), Geoff Read (NIWA)	Brackish water, no destruction of habitat structure	Geoff Read (NIWA), pers comm 12/10/2022	Y	N	N	Y	na	na	na
presence	<i>Athenia bilocularis</i>		Aquatic herb	Nationally Vulnerable	Obligate	Lake Kohangatera	Schedule A2: Lakes with outstanding indigenous ecosystem values (Lake Kohangatera)		1756332	5419085	Enright and Hopkins, de Winton, Taumoepeau, Champion spreadsheet	Usually in shallow fresh water habitat not far from coast, lacustrine and riverine. Coastal development threat	NZPCN, Champion 2021	Y	Y	Y	Y	na	na	na
Plant	<i>Athenia bilocularis</i>		Aquatic herb	Nationally Vulnerable	Obligate	Lake Kohangapiripi	Schedule A2: Lakes with outstanding indigenous ecosystem values (Lake Kohangapiripi)		1755414	5419643	Wells, de Winton, Champion spreadsheet	Usually in shallow fresh water habitat not far from coast, lacustrine and riverine. Coastal development threat	NZPCN, Champion 2021	Y	Y	Y	Y	na	na	na
Plant	<i>Athenia bilocularis</i>		Aquatic herb	Nationally Vulnerable	Obligate	Lake Wairarapa	Schedule A2: Lakes with outstanding indigenous ecosystem values (Lake Wairarapa)		1788190	5435414	Mason (old), NZ virtual Herbarium	Usually in shallow fresh water habitat not far from coast, lacustrine and riverine. Coastal development threat	NZPCN, Champion 2021	Y	Y	Y	Y	na	na	na
Plant	<i>Athenia bilocularis</i>		Aquatic herb	Nationally Vulnerable	Obligate	Te Pouaruhe wetland	Schedule F1: Identified natural wetlands (Lake Onoke wetlands)		1776244	5417478	Johnson, NZ Virtual Herbarium	Usually in shallow fresh water habitat not far from coast, lacustrine and riverine. Coastal development threat	NZPCN, Champion 2021	Y	Y	Y	Y	na	na	na
Plant	<i>Amphibromus fluitans</i>		Water brome	Nationally Vulnerable	Obligate	Wairoa, Lake Wairarapa	Schedule A3: Wetlands with outstanding indigenous biodiversity values (Eastern Lake Wairarapa)		1789210	5431644	Ogle, Silbery, Champion spreadsheet and Regionally threatened plant database	Seasonally dry wetlands or edges of lakes and lagoons. Drainage, grazing (though also benefits), weeds.	NZPCN, Champion 2021	Y	Not sure	Y	Y	na	na	Benefits
Plant	<i>Amphibromus fluitans</i>		Water brome	Nationally Vulnerable	Obligate	Boggy Pond/Matthews Lagoon	Schedule F3: Identified natural wetlands (Boggy Pond/Matthews Lagoon)		1789712	5430641	Ogle, Silbery, Champion spreadsheet and Regionally threatened plant database	Seasonally dry wetlands or edges of lakes and lagoons. Drainage, grazing (though also benefits), weeds.	NZPCN, Champion 2021	Y	Not sure	Y	Y	na	na	Benefits
Plant	<i>Amphibromus fluitans</i>		Water brome	Nationally Vulnerable	Obligate	JK Donald wetland	Schedule A3: Wetlands with outstanding indigenous biodiversity values (Eastern Lake Wairarapa)		1793262	5436502	Ogle (old), Champion spreadsheet and Regionally threatened plant database	Seasonally dry wetlands or edges of lakes and lagoons. Drainage, grazing (though also benefits), weeds.	NZPCN, Champion 2021	Y	Not sure	Y	Y	na	na	Benefits
Plant	<i>Amphibromus fluitans</i>		Water brome	Nationally Vulnerable	Obligate	JK Donald wetland	Schedule F3: Identified natural wetlands (JK Donald/Tairoa)		1793828	5436417	Ogle, Silbery, Champion spreadsheet and Regionally threatened plant database	Seasonally dry wetlands or edges of lakes and lagoons. Drainage, grazing (though also benefits), weeds.	NZPCN, Champion 2021	Y	Not sure	Y	Y	na	na	Benefits
Plant	<i>Amphibromus fluitans</i>		Water brome	Nationally Vulnerable	Obligate	Queen Elizabeth Park Railway wetlands	Schedule F3: Identified natural wetlands (Queen Elizabeth Park Railway Wetlands)		1766343	5462469	Ogle, Regionally threatened plant database	Seasonally dry wetlands or edges of lakes and lagoons. Drainage, grazing (though also benefits), weeds.	NZPCN, Champion 2021	Y	Not sure	Y	Y	na	na	Benefits
Plant	<i>Amphibromus fluitans</i>		Water brome	Nationally Vulnerable	Obligate	Ica Station wetland	na	New map, Amp flu Ica Station	1857394	5463484	Silbery, Regionally threatened plant database	Seasonally dry wetlands or edges of lakes and lagoons. Drainage, grazing (though also benefits), weeds.	NZPCN, Champion 2021	Y	Not sure	Y	Y	na	na	Benefits
Plant	<i>Carex cirrhosa</i>		Curly sedge	Nationally Endangered	Facultative wet	Lake Domain, Lake Wairarapa	Schedule A2: Lakes with outstanding indigenous ecosystem values (Lake Wairarapa)		1792626	5440657	Silbery and Enright, Champion spreadsheet	Lake, pond margins, seasonal inundation. Weeds, changes in hydrology	NZPCN, Champion 2021	Y	Not sure	Y	Y	na	na	Y
Plant	<i>Carex cirrhosa</i>		Curly sedge	Nationally Endangered	Facultative wet	Lake Pounui	Schedule A3: Wetlands with outstanding indigenous biodiversity values (Lake Pounui Wetlands)		1777339	5420847	Ogle, Champion spreadsheet	Lake, pond margins, seasonal inundation. Weeds, changes in hydrology	NZPCN, Champion 2021	Y	Not sure	Y	Y	na	na	Y
Plant	<i>Carex cirrhosa</i>		Curly sedge	Nationally Endangered	Facultative wet	Western Reserve, Lake Wairarapa	Schedule A3: Wetlands with outstanding indigenous biodiversity values (Lake Pounui Wetlands)		1782917	5434442	Burke (old), Leon Perrie spreadsheet	Lake, pond margins, seasonal inundation. Weeds, changes in hydrology	NZPCN, Champion 2021	Y	Not sure	Y	Y	na	na	Y

Species type	Species Name	Maori Name	Common Name	Threat Ranking	Freshwater Rating	Waterbody/Site	Schedule F1 name location	Other locations	Easting	Northing	Observation source	Critical requirements	Critical requirements reference	Water level	Water quality	Pests	Habitat disturbance	Connectivity	Riparian habitat at Grazing spawning site	
Plant	<i>Contigeda minima subsp. minima</i>		Sneezeweed	Nationally Endangered	Facultative wet	Raumati South Peatlands A	na	Wetlands Scientific 2021 (Raumati South Peatlands A)	1767856	5467212	Ward, iNaturalist	Wet or partially dried out lake, pond and stream margins - intolerant of any competition, so needs to be weed-free	NZPCN	Y	Not sure	Y	Y	na	na	Not sure
Plant	<i>Contigeda minima subsp. minima</i>		Sneezeweed	Nationally Endangered	Facultative wet	Boar Creek pond	na	New map, Boar Creek Reserve	1794235	5447907	Enright, iNaturalist	Wet or partially dried out lake, pond and stream margins - intolerant of any competition, so needs to be weed-free	NZPCN	Y	Not sure	Y	Y	na	na	Not sure
Plant	<i>Crassula peduncularis</i>		Purple stonecrop	Nationally Critical	Facultative wet	Cape Palliser North Fen 7	na	Wetlands Scientific 2021 (Cape Palliser North Fen 7)	1792277	5391224	Silbery, Regionally threatened plant database	Ephemeral wetlands, lake margins, damp coastal turfs. Affected by weeds, benefits from grazing	NZPCN, Champion 2021	Y	Not sure	Y	Y	na	na	Benefits
Plant	<i>Crassula peduncularis</i>		Purple stonecrop	Nationally Critical	Facultative wet	Palliser Bay	na	New map, Cra ped 1	1792337	5391237	Enright, Regionally threatened plant database	Ephemeral wetlands, lake margins, damp coastal turfs. Affected by weeds, benefits from grazing	NZPCN, Champion 2021	Y	Not sure	Y	Y	na	na	Benefits
Plant	<i>Crassula peduncularis</i>		Purple stonecrop	Nationally Critical	Facultative wet	Te Awaiti	na	New map, Cra ped 5	1821649	5409306	Silbery, Regionally threatened plant database	Ephemeral wetlands, lake margins, damp coastal turfs. Affected by weeds, benefits from grazing	NZPCN, Champion 2021	Y	Not sure	Y	Y	na	na	Benefits
Plant	<i>Crassula peduncularis</i>		Purple stonecrop	Nationally Critical	Facultative wet	Turakirae (old)	na	New map, Cra ped 9	1758785	5413246	de Lange, Regionally threatened plant database	Ephemeral wetlands, lake margins, damp coastal turfs. Affected by weeds, benefits from grazing	NZPCN, Champion 2021	Y	Not sure	Y	Y	na	na	Benefits
Plant	<i>Crassula peduncularis</i>		Purple stonecrop	Nationally Critical	Facultative wet	Orongorongo Station	na	New map, Cra ped 8	1759621	5413228	de Lange, Champion spreadsheet	Ephemeral wetlands, lake margins, damp coastal turfs. Affected by weeds, benefits from grazing	NZPCN, Champion 2021	Y	Not sure	Y	Y	na	na	Benefits
Plant	<i>Crassula peduncularis</i>		Purple stonecrop	Nationally Critical	Facultative wet	Orongorongo Station	na	New map, Cra ped 10	1758827	5415096	de Lange, Champion spreadsheet	Ephemeral wetlands, lake margins, damp coastal turfs. Affected by weeds, benefits from grazing	NZPCN, Champion 2021	Y	Not sure	Y	Y	na	na	Benefits
Plant	<i>Crassula peduncularis</i>		Purple stonecrop	Nationally Critical	Facultative wet	Mangatoetoe Stream	na	New map, Cra ped 4	1788149	5392276	Silbery, Regionally threatened plant database	Ephemeral wetlands, lake margins, damp coastal turfs. Affected by weeds, benefits from grazing	NZPCN, Champion 2021	Y	Not sure	Y	Y	na	na	Benefits
Plant	<i>Crassula peduncularis</i>		Purple stonecrop	Nationally Critical	Facultative wet	Mangatoetoe Stream	na	New map, Cra ped 3	1788060	5392156	Enright, Regionally threatened plant database	Ephemeral wetlands, lake margins, damp coastal turfs. Affected by weeds, benefits from grazing	NZPCN, Champion 2021	Y	Not sure	Y	Y	na	na	Benefits
Plant	<i>Crassula peduncularis</i>		Purple stonecrop	Nationally Critical	Facultative wet	South of Glenburn Station	na	New map, Cra ped 7	1836702	5419126	Silbery, Regionally threatened plant database	Ephemeral wetlands, lake margins, damp coastal turfs. Affected by weeds, benefits from grazing	NZPCN, Champion 2021	Y	Not sure	Y	Y	na	na	Benefits
Plant	<i>Crassula peduncularis</i>		Purple stonecrop	Nationally Critical	Facultative wet	North of Honeycomb Rock	na	New map, Cra ped 6	1835612	5418201	Silbery, Regionally threatened plant database	Ephemeral wetlands, lake margins, damp coastal turfs. Affected by weeds, benefits from grazing	NZPCN, Champion 2021	Y	Not sure	Y	Y	na	na	Benefits
Plant	<i>Crassula peduncularis</i>		Purple stonecrop	Nationally Critical	Facultative wet	North of Otereti River	na	New map, Cra ped 11	1821579	5409125	Enright, Champion spreadsheet	Ephemeral wetlands, lake margins, damp coastal turfs. Affected by weeds, benefits from grazing	NZPCN, Champion 2021	Y	Not sure	Y	Y	na	na	Benefits
Plant	<i>Gratiola concinna</i>		Gratiola	Nationally Endangered	Facultative wet	Highden QEII covenant	na	New map, Gra con 2	1818308	5476512	Enright and Silbery, Champion spreadsheet and Regionally threatened plant database	Sometimes aquatic at edge of shallow lakes or rivers, muddy hollows in forest. Threatened by habitat modification and wetland drainage, also invasive weeds	NZPCN, Champion 2021	Y	Not sure	Y	Y	na	na	Y?
Plant	<i>Gratiola concinna</i>		Gratiola	Nationally Endangered	Facultative wet	Next to Highden covenant	na	New map, Gra con 1	1818393	5467410	Enright and Silbery, Champion spreadsheet	Sometimes aquatic at edge of shallow lakes or rivers, muddy hollows in forest. Threatened by habitat modification and wetland drainage, also invasive weeds	NZPCN, Champion 2021	Y	Not sure	Y	Y	na	na	Y?
Plant	<i>Juncus pauciflorus</i>		Leafless rush	Nationally Vulnerable	Facultative wet	Mangaroa Swamp	na	Map of Mangaroa Swamp sent to UHCC	1775909	5445220	Healy (Old), Regionally threatened plant database	In damp ground under scrub. Development biggest threat	NZPCN, Champion 2021	Y	Not sure	Not su	Y	na	na	Y?
Plant	<i>Juncus holoschoenus var holoschoenus</i>		Rush	Nationally Critical	Obligate	Pahaoa gorge	na	New map, Jun hol	1823569	5419677	Enright, Landcare Research Systematics Collections Data	Damp ground and hollows in light scrub, pasture, swamp margins, dune swales. Threats are weeds, eutrophication, hare browse	NZPCN, Champion 2021	Y	Y	Y	Y	na	na	Y
Plant	<i>Mazus novozeelandiae subsp. impolitius</i>		Dwarf musk	Nationally Endangered	Facultative wet	Te Kaukau Point Seal Haulout (incorporate), Maz nov imp 2	Schedule F3: Identified natural wetlands (Te Kaukau Point Seal Haulout)	na	1802730	5395131	Enright and Silbery, Champion spreadsheet	Very susceptible to disturbance, habitat clearance and modification. Benefits from grazing, but too much trampling has impacts. Weed threat.	NZPCN, Champion 2021	Y	N	Y	Y	na	na	Benefits
Plant	<i>Mazus novozeelandiae subsp. impolitius</i>		Dwarf musk	Nationally Endangered	Facultative wet	Pahaoa wetland (incorporate), Maz nov imp 4	Schedule F3: Identified natural wetlands (Pahaoa)	na	1827146	5413395	Enright, Champion spreadsheet	Prefers coastal sites, damp hollows. Very susceptible to disturbance, habitat clearance and modification. Benefits from grazing, but too much trampling has impacts. Weed threat.	NZPCN, Champion 2021	Y	N	Y	Y	na	na	Benefits
Plant	<i>Mazus novozeelandiae subsp. impolitius</i>		Dwarf musk	Nationally Endangered	Facultative wet	Wetland up from Pahaoa	na	New map, Maz nov imp 6	1828803	5414180	Enright, Champion spreadsheet	Prefers coastal sites, damp hollows. Very susceptible to disturbance, habitat clearance and modification. Benefits from grazing, but too much trampling has impacts. Weed threat.	NZPCN, Champion 2021	Y	N	Y	Y	na	na	Benefits
Plant	<i>Mazus novozeelandiae subsp. impolitius</i>		Dwarf musk	Nationally Endangered	Facultative wet	Wetland up the road from Aweha	na	New map, Maz nov imp 5	1813353	5403269	Enright, Champion spreadsheet	Prefers coastal sites, damp hollows. Very susceptible to disturbance, habitat clearance and modification. Benefits from grazing, but too much trampling has impacts. Weed threat.	NZPCN, Champion 2021	Y	N	Y	Y	na	na	Benefits
Plant	<i>Mazus novozeelandiae subsp. impolitius</i>		Dwarf musk	Nationally Endangered	Facultative wet	Along Pahaoa River	na	New map, Maz nov imp 3	1828803	5414180	Enright, Champion spreadsheet	Prefers coastal sites, damp hollows. Very susceptible to disturbance, habitat clearance and modification. Benefits from grazing, but too much trampling has impacts. Weed threat.	NZPCN, Champion 2021	Y	N	Y	Y	na	na	Benefits
Plant	<i>Mazus novozeelandiae subsp. impolitius</i>		Dwarf musk	Nationally Endangered	Facultative wet	South of Pahaoa River Mouth	na	New map, Maz nov imp 7	1827117	5413275	Enright, Champion spreadsheet	Prefers coastal sites, damp hollows. Very susceptible to disturbance, habitat clearance and modification. Benefits from grazing, but too much trampling has impacts. Weed threat.	NZPCN, Champion 2021	Y	N	Y	Y	na	na	Benefits
Plant	<i>Pterostylis micromega</i>		Swamp orchid	Nationally Endangered	Obligate	Davies Swamp wetland	Schedule F3: Identified natural wetlands (Davies Swamp Wetland)	na	1780618	5425716	Silbery, Regionally threatened plant database	Bogs, fens and swamps. Wetland drainage, weeds, benefits from disturbance.	NZPCN, Champion 2021	Y	Not sure	Y	Y	na	na	Benefits
Plant	<i>Pterostylis micromega</i>		Swamp orchid	Nationally Endangered	Obligate	Papatahi Neville Davies wetland	Schedule F3: Identified natural wetlands (Papatahi Neville Davies)	na	1780207	5425543	Enright, Regionally threatened plant database	Bogs, fens and swamps. Wetland drainage, weeds, benefits from disturbance.	NZPCN, Champion 2021	Y	Not sure	Y	Y	na	na	Benefits
Plant	<i>Pterostylis micromega</i>		Swamp orchid	Nationally Endangered	Obligate	Seep on side of Ruamahanga north of Martinborough	na	New map, Pte mic	1808982	5440156	Enright, Regionally threatened plant database	Bogs, fens and swamps. Wetland drainage, weeds, benefits from disturbance.	NZPCN, Champion 2021	Y	Not sure	Y	Y	na	na	Benefits

Species type	Species Name	Maori Name	Common Name	Threat Ranking	Freshwater Rating	Waterbody/Site	Schedule F1 name location	Other locations	Easting	Northing	Observation source	Critical requirements	Critical requirements reference	Water level	Water quality	Pests	Habitat disturbance	Connectivity	Riparian habitat at spawning site	Grazing
Plant	<i>Pterostylis micramega</i>		Swamp orchid	Nationally Endangered	Obligate	Mangaroa Swamp	na	Map of Mangaroa Swamp sent to UHCC	1773954	5443719	Enright (old), Regionally threatened plant database	Bogs, fens and swamps. Wetland drainage, weeds, benefits from disturbance.	NZPCN, Champion 2021	Y	Not sure	Y	Y	na	na	Benefits
Moss	<i>Fissidens berteroi</i>		Moss	Nationally Vulnerable	Obligate	Lake Wairarapa, Lake Domain Reserve	Schedule A2: Lakes with outstanding indigenous ecosystem values (Lake Wairarapa)		1792786	5440238	Perrie	No water quality requirement as found downstream of the Auckland zoo, water levels important as is habitat structure. Champion lists reduced water levels, eutrophication and weed competition as threats	Jessica Beever pers comm., Perrie report, Champion 2021	Y	Not sure	N	Y	na	na	na
Moss	<i>Fissidens berteroi</i>		Moss	Nationally Vulnerable	Obligate	Bridge over Barton's outflow (Lake Wairarapa)	na	New map (Waterway)	1793697	5344114	Perrie	As for Lake Wairarapa	Jessica Beever pers comm., Perrie report, Champion 2021	Y	Not sure	N	Y	na	na	na
Moss	<i>Fissidens berteroi</i>		Moss	Nationally Vulnerable	Obligate	Lake Wairarapa western side of lake near DOC reserve	na	New map (Waterway)	1783108	5434581	Perrie	As for Lake Wairarapa	Jessica Beever pers comm., Perrie report, Champion 2021	Y	Not sure	N	Y	na	na	na
Moss	<i>Fissidens berteroi</i>		Moss	Nationally Vulnerable	Obligate	Abbotts Creek	na	New map (Waterway)	1792103	5443205	Moss 1982	As for Lake Wairarapa	Jessica Beever pers comm., Perrie report, Champion 2021	Y	Not sure	N	Y	na	na	na
Moss	<i>Fissidens berteroi</i>		Moss	Nationally Vulnerable	Obligate	Abbotts Creek	na	New map (Waterway)	1792424	5443230	Brownsey 1984	As for Lake Wairarapa	Jessica Beever pers comm., Perrie report, Champion 2021	Y	Not sure	N	Y	na	na	na
Moss	<i>Fissidens berteroi</i>		Moss	Nationally Vulnerable	Obligate	Makoura Stream	na	New map (Waterway)	1823665	5462724	Perrie	As for Lake Wairarapa	Jessica Beever pers comm., Perrie report, Champion 2021	Y	Not sure	N	Y	na	na	na
Moss	<i>Fissidens berteroi</i>		Moss	Nationally Vulnerable	Obligate	Makoura Stream	na	New map (Waterway)	1823821	5462277	Perrie	As for Lake Wairarapa	Jessica Beever pers comm., Perrie report, Champion 2021	Y	Not sure	N	Y	na	na	na
Moss	<i>Fissidens berteroi</i>		Moss	Nationally Vulnerable	Obligate	Zealandia	na	New map (Waterway)	1746409	5426999	Perrie	As for Lake Wairarapa	Jessica Beever pers comm., Perrie report, Champion 2021	Y	Not sure	N	Y	na	na	na
Moss	<i>Fissidens berteroi</i>		Moss	Nationally Vulnerable	Obligate	Kuripuni Stream	na	New map (Waterway)	1822121	5462945	Perrie	As for Lake Wairarapa	Jessica Beever pers comm., Perrie report, Champion 2021	Y	Not sure	N	Y	na	na	na
Moss	<i>Fissidens berteroi</i>		Moss	Nationally Vulnerable	Obligate	Kuripuni Stream	na	New map (Waterway)	1822960	5462458	Perrie	As for Lake Wairarapa	Jessica Beever pers comm., Perrie report, Champion 2021	Y	Not sure	N	Y	na	na	na
Bat	<i>Chalinolobus tuberculatus</i>	Pekapeka	Long-tailed bat	Nationally Critical	Facultative wet	Loves Bush roost site	Schedule A3: Wetlands with outstanding biodiversity values (Allen/Loves Bush)		1818232	5458332	Sustainable Wairarapa Bat Group	Roost trees present in wetland area, require freedom from disturbance and mammalian pest control	O'Donnell 2000	Y	Y	Y	Y	Y	na	na
Bat	<i>Chalinolobus tuberculatus</i>	Pekapeka	Long-tailed bat	Nationally Critical	Facultative wet	All wetlands, rivers and streams within 2,000m of Loves Bush roost site	na	Wetlands in Wetlands - Scientific 2021 that aren't in F3, Main Rivers and streams within 2 km	1818232	5458332	Sustainable Wairarapa Bat Group	Foraging habitat: Freshwater invertebrates from clean wetlands, rivers and streams within 2km of a roosting site	O'Donnell 2000, Rockwell et al. 2017, Dekrout et al. 2014	Y	Y	Y	Y	Y	na	na
Bat	<i>Chalinolobus tuberculatus</i>	Pekapeka	Long-tailed bat	Nationally Critical	Facultative wet	All wetlands, rivers and streams within 2,000m of Mt Holdsworth roost site	na	Wetlands in Wetlands - Scientific 2021 that aren't in F3, Main Rivers and streams within 2 km	1809165	5470999	Sustainable Wairarapa Bat Group	Foraging habitat: Freshwater invertebrates from clean wetlands, rivers and streams within 2km of a roosting site	O'Donnell 2000, Rockwell et al. 2017, Dekrout et al. 2014	Y	Y	Y	Y	Y	na	na
Bat	<i>Chalinolobus tuberculatus</i>	Pekapeka	Long-tailed bat	Nationally Critical	Facultative wet	All wetlands, rivers and streams within 2,000m of Rewa Bush roost site	na	Wetlands in Wetlands - Scientific 2021 that aren't in F3, Main Rivers and streams within 2 km	1809165	5470999	Sustainable Wairarapa Bat Group	Foraging habitat: Freshwater invertebrates from clean wetlands, rivers and streams within 2km of a roosting site	O'Donnell 2000, Rockwell et al. 2017, Dekrout et al. 2014	Y	Y	Y	Y	Y	na	na

**Table B2: Excluded Threatened freshwater species observations**

Species	Site	Easting	Northing	Reason for exclusion
<i>Amphibromus fluitans</i>	Back dunes of Queen Elizabeth Park, Ogle 1989	1765488	5463114	No wetlands can be determined nearby
<i>Amphibromus fluitans</i>	Paddock north of Boggy Pond, Ogle 984	1792740	5432885	Paddock with no discernible wetlands
<i>Carex cirrhosa</i>	Paddock to west of Lake Wairarapa, Mason, Druce 1951	1784861	5436701	Paddock with no discernible wetlands
<i>Carex cirrhosa</i>	Forest on western side of Lake Wairarapa, Chinnock	1782650	543701	Forest
<i>Carex cirrhosa</i>	Paddock to west of Lake Wairarapa, Mason 1951	1784849	543612	Paddock
<i>Carex cirrhosa</i>	In Wairio, Braggins 1966	1788515	5431062	Co-ordinates vague
<i>Crassula peduncularis</i>	Paddock, Druce 1962	1789838	5391028	Co-ordinates vague
<i>Crassula peduncularis</i>	Paddock, Druce 1972	1764403	5439377	Paddock with no discernible wetlands
<i>Crassula peduncularis</i>	Pine forest de Lange and Silbery 1990	1835703	5420403	Pine forest – no discernible wetlands
<i>Crassula peduncularis</i>	Eastern Wairarapa Enright 2009	1821580	5409125	Point in the sea
<i>Mazus novaezeelandiae</i> subsp <i>impolitus</i>	Eastern Wairarapa, Enright 2010	1826689	5413013	Point in the sea
<i>Mazus novaezeelandiae</i> subsp <i>impolitus</i>	Near Eparaima, Heenan	1854674	5443856	Paddock
<i>Juncus holoschoenus</i> var <i>holoschoenus</i>	Druce, 1967	1823787	5418937	Now pine forest
<i>Urticularia australis</i>	Suburban area de Lange 1991	1768502	5472266	Was at Waikanae ponds, but gone now
<i>Galaxias postvectis</i>	Underground	170249	5425970	Uncertainty about veracity
<i>Galaxias postvectis</i>	Unnamed stream Sinclair Head	1741378	5421589	1975, uncertainty about veracity
<i>Galaxias postvectis</i>	Waipapa Stream	1744041	5420044	Not captured to ID – short catchment
<i>Galaxias postvectis</i>	Little Waitangi Stream	1762280	5450385	Old - 1963
<i>Geotria australis</i>	Kaiwhata River – WRC 2005	1871900	5467471	Co-ordinates in the sea
<i>Geotria australis</i>	Near Waiohine River	1806582	5451080	Co-ordinates in a paddock
<i>Geotria australis</i>	Horokiri Stream	1762880	5451885	Co-ordinates in a paddock
<i>Geotria australis</i>	Waikanae	1774482	5471585	Co-ordinates in a paddock
<i>Geotria australis</i>	Waimeha	1769582	5473582	Not a waterbody, Unknown institution